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INTERPERSONAL BEHAVIOR EVENTS OF TEACHERS AND PUPILS INTERACTING AND WORKING TOGETHER IN THE CLASSROOM WERE STUDIED, ANALYZED, AND EVALUATED. THE MAIN FOCUS WAS THE CAUSE AND EFFECT RELATIONSHIP OF THE INTERPERSONAL ATTITUDES OF TEACHERS AND PUPILS IN INTERMEDIATE GRADE CLASSROOMS. TEACHERS' ATTITUDES WERE MEASURED BY (1) THE MINNESOTA TEACHER ATTITUDE INVENTORY (MTAI) AND (2) A SEMANTIC-DIFFERENTIAL MEASURE PREPARED FOR THIS STUDY. PUPILS WERE MEASURED BY THE INVENTORY "ABOUT MY TEACHER." RESULTS REVEALED (1) PUPIL ATTITUDES TOWARD TEACHERS WERE RELATED TO PUPILS' SOCIAL CLASS BACKGROUNDS, (2) TEACHER ATTITUDE RELATIONSHIPS WITH PUPILS CHANGED WITH LENGTH OF TEACHING EXPERIENCE, AND (3) TEACHER INFLUENCE UPON PUPILS IS GREATER THAN PUPIL INFLUENCE UPON TEACHERS. THE INVESTIGATOR FOUND COMPLEXITY OF ATTITUDE RELATIONSHIPS BETWEEN TEACHERS AND PUPILS TO BE GREATER THAN EXPECTED AND DREW THE CONCLUSION THAT "BETTER" TEACHERS SHOULD BE PLACED IN LOWER CLASS NEIGHBORHOODS. (AL)

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Research Report to the

U. S. OFFICE OF EDUCATION

Factors Involved in Determining the Relationship Between Teachers' and Pupils' Attitudes

by

Albert H. Yee
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Chapter I

The Problem

Getting to Know You

It's a very ancient saying, but a true and honest thought.
That if you become a teacher, by your pupils you'll be taught.

From Rodgers and Hammerstein's
"The King and I"

A classroom teacher's attitudes towards his pupils and teaching as a career significantly affect his behavior with his pupils and teaching associates. On the other hand, the pupil's attitudes towards his teacher and school in general significantly affect his behavior in the classroom. Indeed, since attitudes involve beliefs, feelings, and action tendencies, the relationship between teachers' and pupils' interpersonal attitudes can be said to comprise the most important variables affecting the classroom climate and the progress of learning wherever teachers and pupils may be found in social interaction.

Much attention has been given to the investigation of teacher characteristics to find various patterns of successful or unsuccessful teaching.

According to Biddle and Ellena (1964, p. v), "Probably no aspect of education has been discussed with greater frequency, with as much deep concern, . . . than teacher effectiveness." The general consensus among educators has been that little reliable evidence has been found by researchers to help evaluate teacher effectiveness. Agreeing with the general consensus, Brain (1965, p. 35) wrote:

> We not only lack agreement on criterion measures, but we also lack a consensus on the forces related causally to these criterion measures. Nor can we long escape the conclusion that a basic weakness in the research has been that, whatever the criteria of teacher effectiveness may be, teachers must ultimately be evaluated in terms of their effects on pupil behavior. But alas, we again run into the difficulty of obtaining a consensus on what constitutes effective pupil behavior. Furthermore, we cannot demonstrate conclusively to what extent the behavior of pupils is influenced by conditions and persons other than a particular teacher being evaluated. Effectiveness cannot be measured in the abstract; it must be assayed in relationship to someone, something, or some process.

According to a recent review of research on teacher behavior and instruction by Ryans (1963, p. 427), two major approaches to research on teacher behavior have been followed by researchers. They are as follows:

> (a) the description of teacher behavior based on direct observation of acts of teachers in teaching situations and (b) the description of teacher behavior based on inferences arrived at through observation of the acts and achievements of pupils in the teachers' classes.

The feasibility of combining the above approaches has been demonstrated by some researchers. For example, Washburne and Heil (1960; also Heil and Washburne, 1962) used a variety of information on teacher and pupil behavior to classify teachers into three types and determine the effective learning of three types of children when they were taught by each type of teacher.

Getzels and Jackson (1963, p. 533) emphasized the need for further investigations of teacher behavior such as Washburne's and Heil's by commenting as follows:

> The issue is . . . whether efforts such as these will enable us to shift from studying the personal qualities of teachers as if there were an ideal teacher to an analysis of the interaction between the personalities of students and teachers.

In complete agreement with the last quotation, this study aims to provide a greater understanding of the interaction between the personalities of students and teachers by investigating specific aspects of the relationship between teachers' and pupils' interpersonal attitudes. Greater understanding of teacher behavior than heretofore supplied by previous approaches may be forthcoming when all significant participants in the teaching-learning situation are investigated as agents acting with and reacting to each other.

Before proceeding any further, we shall offer definitions of key concepts. This writer must express his gratitude to Krech, Crutchfield, and Ballachey (1963) for their comprehensive and coherent text in social psychology which provided the following:

(1) Interpersonal behavior event

> PROCESS OF INTERACTION . . . the essential features of the interpersonal behavior event . . . . may be thought of as a process of interaction between the two or more individuals, in which the action of one person . . . is a response to the second person . . . and, at one and the same time, is a stimulus for the second person . . . . the actions of each are in reference to the other. The actions of each are at once a result of and a cause of the actions of the other. (p. 4)
>
> The interpersonal behavior event is an integrated act. It reflects the integrated influence of the individual's wants and goals upon his emotions, thoughts, perceptions, memories. (p. 6)

> The effects of a man's past, present, and anticipated interpersonal behavior events influence each of his activities, no matter how simple or apparently remote. (p. 7)

(2) Attitudes

> The actions of the individual are governed to a large extent by his attitudes. An attitude can be defined as an enduring system of three components centering about a single object: the beliefs about the object -- the cognitive component; the affect connected with the object -- the feeling component; and the disposition to take action with respect to the object -- the action tendency component. (p. 146)

This study concerns itself with the interpersonal behavior events of teachers and pupils interacting and working together in the classroom and school. The main focus of this study is the cause and effect relationship of the interpersonal attitudes of teachers and pupils working together in intermediate grade classrooms.

Suppose two variables, e.g., teachers' attitudes toward pupils (T) and pupils' attitudes toward their teacher (P), are correlated. Then it is possible that T is determining P, or that P is determining T, or that both variables are being determined by a third variable, Q. Which of these directions of causal influence predominates in the classroom? Teachers' scores on the Minnesota Teacher Attitude Inventory (MTAI) may be considered one such variable (i.e., T). Mean pupils' ratings of their teachers on the instrument, "About My Teacher," recently developed (Beck, 1964) to measure favorability of attitudes of pupils toward their teachers, may be considered a second such variable (i.e., P). Principals' scores on the MTAI may be considered a third variable, (i.e., Q).

The problem to be studied in this investigation is, To what extent may T be considered a determiner of P? Or should P be considered a determiner of T? And to what extent may Q and other variables be determiners of both T and P?

Related Literature

A review of literature pertinent to this study will be presented in three parts: (1) the effects of teacher-pupil interpersonal attitudes; (2) the use of the Minnesota Teacher Attitude Inventory; and (3) theoretical considerations.

The Effects of Teacher-Pupil Interpersonal Attitudes. The popular romantic assumption is that there is a classical, ideal type of teacher who is effective with all pupils, from recalcitrant to indifferent types. Theories and studies of human interaction would tend to refute the superficial romantic view and say that the nature of interpersonal behavior events is the result of all personality structures interacting together. The normal practice has been to compliment and reward the teacher who has a well-functioning, achieving group of learners for her warm and effective personality; in the opposite situation, the children's lack of responsiveness and background has been blamed far more than the teacher. The pupils cannot be overlooked in the interactive process; they may be more influential in the process of developing a classroom "social climate" than has been heretofore believed.

Earlier studies on the "social climate" of classrooms, such as the well-known 1940 study by White and Lippitt (1960), have investigated the power of the teacher to influence the classroom atmosphere and the pupils' behavior. Research by Bush (1954) demonstrated some of the complexity and uncertainty involved in the relationships between teacher and pupils. The researcher found that teachers' "verbal expression of liking for pupils may be unrelated to her professional competence" (p. 87); but that "the findings . . . suggest that the personal liking of a pupil for his teacher is one of the most powerful factors in bringing about an effective learning relationship between the teacher and the pupil" (p. 189). However, the influence exerted by the pupils on their teacher remains uncertain.

Withal and Lewis (1963, p. 708) wrote that the investigations of "'monadic' variables, such as the teacher's training and experience, the learners' socioeconomic status and intellectual qualities, . . . has tended to be unrewarding and sterile. Researchers then tried to examine social processes and interactions through static means." It was found that conditions could not be created or found to "ensure both predictability and control of the quality and type of learning." The interpersonal behavior event involves direct interaction and interchange. Greater understanding of the interpersonal behavior events in teaching must, therefore, take into account the personality characteristics of the pupils, as well as those of the teacher, and the effects of their interaction over time. Studies of teacher effectiveness have generally concentrated on the characteristics and responses of teachers (Ryan, 1960). Fewer studies have made use of pupil perception of teacher effectiveness, even though measures of pupils' perception of their teacher's effectiveness have been found to be valid and reliable. Reporting reliability coefficients of .90 and higher for all items in his inventory obtained by correlating chance-half averages, Bryan (1941, p. 659) concluded:

> Since students themselves are the primary and ultimate source of information on their own opinions we must accept their opinions as valid, for there is no higher authority to which appeal can be made. Their verdicts concerning their own opinions are, therefore, as valid or true as they are reliable. Here is one situation in which it can be said that validity is synonymous with reliability.

In a study of teacher effectiveness, McCall (1952) found that pupil achievement was related more highly with pupil rating of the teacher than with other variables, such as pupil growth and teacher's years of experience, amount of training, and scores on a test of professional knowledge.

In 1951, the development of the Minnesota Teacher Attitude Inventory (MTAI) in standardized form set off an important series of studies to investigate the effects of teacher-pupil interpersonal attitudes. The development of the MTAI and its originator's (Leeds, 1950) validation studies will be discussed in greater length in the next section. Suffice it to say that the MTAI provides measures of teachers' affective attitudes towards children; and validity coefficients as reported by the originators have been about .60 for relationships between teachers' MTAI scores and the combined criteria of pupils', principals', and experts' ratings of the teachers (Cook, Kearney, Rocchio, and Thompson, 1956). In a validation study of the MTAI against mean pupils' ratings of their teachers, Gage and Suci (1951) obtained an unexpected negative correlation (-.18). The results were interpreted as suggesting that the pupils, enrolled in a university high school, held strong cognitive values which made the affective competence of their teachers less important to them.

Della-Piana and Gage (1955) pursued the interpretations raised in the Gage and Suci (1951) study by investigating the question, "Do the values of pupils determine what characteristics of the teacher will influence the pupils' evaluation of him?" It was hypothesized that teacher attitudes as measured with the MTAI would correlate with the pupils' ratings of the teacher as measured with the Leeds' "My Teacher" rating scale in different ways according to pupils' values as measured with a forced-choice values instrument. The pupils' values were measured on a dimension called "affective" (valuing teacher's help with their social-emotional needs) versus "cognitive" (valuing teacher's help in achieving intellectual goals). The findings revealed a low correlation ($\underline{r} = .05$) between the MTAI and the ratings of teachers by pupils with high cognitive values, and a relatively high correlation ($\underline{r} = .57$) in the case of pupils with high affective values.

The results of the study supported the theory that leadership involves an interaction between the characteristics of the leader and the values of the followers. The validity of the MTAI in predicting a teacher's effectiveness was found to vary according to the value-orientation of her pupils. For pupils with strong cognitive values, the teacher's MTAI score did not correlate as highly with pupils' ratings as for pupils with strong affective velues. According to Della-Piana and Gage (1955, p. 178), "Teachers scoring high on the MTAI will probably be better liked by pupils who have strong affective values concerning teachers."

In another study, Gage, Runkel, and Chatterjee (1960) found evidence to support their hypothesis that teachers given feed-back information concerning their pupils' perceptions of them as teachers would adjust their classroom behaviors more than those who received no such information. It was further found that such teachers would adjust themselves to more resemble their pupils' desires in an "ideal teacher." Such evidence supports the belief that pupils can influence teacher's attitudes and behavior.

Pupil accomplices were effectively used in three experimental conditions where they were instructed to cooperate with teachers in all respects but to respond in different ways with two methods of teaching spelling. The researchers, Keislar and McNeil (1959), concluded that teachers reliably differ in the extent to which they find pupil enjoyment as compared with pupil gain in achievement the more important reinforcement in selection of a method to teach spelling. Their results supported their belief that (p. 237):

> A teacher's behavior often is a function of the way his pupils respond. If so, he will adopt certain ways of teaching and reject others depending upon his pupils' reactions.

Also investigating teacher-pupil interaction, Rosenfeld and Zander (1961) focused their study on the influence of teachers on the aspirations of students. The researchers based their study of 400 male tenth graders' responses to a Likert-type questionnaire on theorizing by French and Raven (1959) that proposed five separate bases of social power whose effectiveness depends upon the degree that they stimulate forces in the recipient. Results of the study strongly indicated that the favorableness of student attitudes toward teachers and course content is related to the positive or negative forces set up by the separate bases of power used by teachers.

As their study's correlational results would not permit confident specification of the direction of causality, Rosenfeld and Zander (1961) interpreted the most probable direction of causality by using hypotheses and empirical evidence from other writings. What evidence allowed them to assume that teachers were dominant in causing their pupils' attitudes to change was not reported by the writers.

Certainly the complex relationship between teachers' and pupils' personalities makes it difficult to define and isolate the most significant variables affecting classroom behavior. Cook, Hoyt, and Eikaas (1956, p. 167) wrote:

> The reciprocal nature of the relationship between pupils and teacher illustrates the complexity of the interaction between cause and effect in personality development.

More recently, Flanders' (1965) use of classroom interaction analysis has made him consider seriously the nature and consequences of classroom behavior. Flanders suggests that educators need to begin to develop a theory of instruction that takes into account the patterns of causation in the interactive behavior of both teacher and pupils. He wrote:

> A theory of instruction must . . . concern itself with the teacher's acts of influence and the reactions of the students, using the goals of learning as a reference for interpretation.
>
> In order to contribute to a theory of instruction, a hypothesis must propose dynamic cause-and-effect relationships among learning goals, teacher behavior, and student behavior. (p. 111)

Other writers have raised similar questions concerning causality in the relationships between teachers' and pupils' attitudes. Their views will be presented in the next section when the Minnesota Teacher Attitude Inventory is discussed.

The present study is intended to clarify questions concerning the direction of causality in teacher-pupil interpersonal attitudes. Such a study would satisfy in some measure Ryans' (1963, p. 432) call for further knowledge concerning "antecedent-consequent relationships" and "producer-product relationships." He wrote:

> Most of the reported investigations of teacher behavior and teacher characteristics were of a taxonomic or descriptive sort. Although they are appropriate, descriptive observations per se do not provide explanations of teacher behavior. When interrelationships among teacher characteristics or among teacher characteristics and pupil characteristics are reported, they often are of a correlational nature. Moreover, antecedent-consequent relationships usually cannot be inferred . . . . the current state of information does not permit the luxury of inferences about producer-product relationships.

The Use of the Minnesota Teacher Attitude Inventory. The Minnesota Teacher Attitude Inventory (Cook, Leeds, and Callis, 1951) was developed about 1946, and published in standardized form in 1951. It has been employed more frequently in studies of teachers' attitudes than any other instrument. Devoting fourteen Handbook pages to their review of the literature on the MTAI, Getzels and Jackson (1963) reported that research workers had consistently found the MTAI to be valid as a correlate of elementary school pupils' evaluations of their teachers on the affective dimension of teacher-pupil relationships.

Leeds (1950) wrote that his development of the MTAI sprang from a strong desire to help correct other investigators' lack of critical attention to the problem of obtaining understanding of the relationships between teachers and pupils. According to the developer of the MTAI, such understanding would be found in the study of the "personal interaction of teacher and pupil in the classroom." Postulating that "rapport between teacher and pupil constitutes one of the many factors essential to teaching success," Leeds (1950, pp.1-2) asserted that "rapport between two people involves relationship in two directions." The researcher, however, implied direction of causality favoring the teacher in the following statement (p. 2):

> It will be assumed that a teacher's attitude towards pupils and toward children in general is an index to the rapport he has or will have with them.

The assumption has not been satisfactorily tested and remains uncertain today. A general concern over the direction of causation in teacher-pupil behavior and attitudes pervades writings in this area of study. Though writers tend to favor the notion that teacher behavior exerts more effect on pupil attitudes than pupil behavior exerts on teacher attitudes they are willing to hold the question of causality in abeyance until more definite evidence is found. Flanders (1965, p. 65) wrote:

> Those of us who have participated in the analysis of classroom interaction are disposed toward the following statement: that teacher behavior accounts for more of the variance within these relationships than any other factor. A more precise answer must await further research.

In the same sense, Biddle (1964, p. 14) wrote:

> If teacher effectiveness is assumed to be bounded by context and situation, it is also reasonable to assume that pupil response is unique to these conditions . . . . Until such time as there is better information about the relationships between pupil behaviors and properties, focusing upon the former is a better bet. To date, little attention has been paid to the many variables of pupil behavior observable in response to teacher behavior.

As stated in the preceding section, the present study intends to provide a definitive answer to the question of causality in the relationship of teachers' and pupils' interpersonal attitudes. By attempting to answer such a question, the use of attitude inventories for teachers may be specified. To the degree that teachers' attitudes are causes and pupils' attitudes are effects, such instruments as the MTAI have greater significance for selecting prospective teachers and measuring the outcome of teacher education. Insofar as teachers' attitudes are effects and pupils' attitudes toward teachers are causes, then such instruments as the MTAI measure the impact of intra-classroom experience rather than the results of pre-teaching experience.

Many studies have yielded positive findings on the validity of the MTAI, such as those by Leeds (1950, 1952), Callis (1953), Stein and Hardy (1957), Cook, Kearney, Rocchio, and Thompson (1956), Della-Piana and Gage (1955). The validity of the MTAI received further confirmation by Popham and Trimble (1960) who found that the instrument could differentiate between groups of teachers rated successful or unsuccessful by their administrators at the .01 level.

Some researchers, however, have questioned the MTAI's validity and its susceptibility to faking, such as Rabinowitz (1954), Sorenson (1956), and Scott and Brinkley (1960). Although present evidence has been contradictory, the number of research studies supporting the value of the MTAI continues to be substantial. Getzels and Jackson (1963) concluded their review of the MTAI with a call for further research to elucidate its meaning: "The importance of understanding teacher attitudes would certainly justify any efforts to make the MTAI more meaningful" (1963, p. 522).

Studies of the concurrent validity of the MTAI have shown a positive correlation ($\underline{r} = .50$ to $.63$) between in-service teachers' test scores, and the combined criteria of pupils', principals', and experts' ratings of the teachers (Cook, Kearney, Rocchio, and Thompson, 1956). The manual for the MTAI (Cook, Leeds, and Callis, 1950) says that the validity of the experimental form of the MTAI and its final form is based on assumptions allowing validation by principals, an expert in the field of teacher-pupil relations, and the attitudes of the pupils toward their teachers. For the latter, Cook et al. (1950, p. 10) wrote:

> It is assumed that the attitudes of pupils toward their teachers and school work are a reflection of their teachers' attitudes toward them and toward teaching procedures. Hence, if the attitudes of teachers and of pupils are reliably measured there should be a high relationship between them.

The MTAI's predictive validity, however, remains unclear in the light of significant changes in MTAI scores over time. MTAI scores of college students have been found to improve from the beginning of their junior year in teacher education to their senior year. A general decline in MTAI scores appears when students work with pupils in practice teaching. As inservice teachers, their MTAI scores continue to fall through the years of teaching to nearer the level of the scores taken at the beginning of their junior year.

Callis (1950, p. 723) concluded in an analysis of the effect of teacher training and six months of teaching experience on MTAI scores that "a majority of the attitudes were not affected significantly by training or experience." Without reporting total MTAI scores, the researcher based his conclusion on theper cent of items in the instrument that underwent significant change for the 239 subjects in his study. It was found that the first six months of professional training produced significant positive changes in 11 per cent of the items. Four items were affected significantly by both variables. Although a "majority" of the items were not affected by training or experience, it could be argued that the MTAI scores were significantly affected when it is realized that 20 per cent of the MTAI's 150 items would be 30 items and 11 per cent would be 16-17 items. An overall positive change of 30 MTAI points or a negative change of 17 points would be most significant.

Studying the predictive validity of the MTAI, Cook, Hoyt, and Eikaas (1956) found that the mean MTAI scores of various subject matter subgroups differed on all administrations of the MTAI. After two and a half to three years of teaching experience, secondary academic and nonacademic subgroups scored only one and two points respectively from their scores taken at the beginning of their junior year. Mean MTAI scores of early childhood education majors went from 43 at the beginning of their junior year to 74 at the end of their junior year and finally to 64 after two and a half to three years of teaching experience. Correspondingly, elementary education majors scored 54 as beginning juniors, 84 as beginning seniors, and 66 as experienced teachers. A correlation of .59 was reported for the second and third scores of childhood and elementary education majors combined into one group.

A follow-up study by Hoyt and Cook (1960) provided further data on 70 per cent of the subjects that participated in the Cook, Hoyt, and Eikaas

(1956) study. Childhood education teachers who were currently teaching had mean MTAI scores of 57.1 at the beginning of their junior year in college, 81.4 at the end of their junior year, 69.2 after two and a half to three years teaching experience, and 62.5 after four to seven years of teaching experience. At corresponding periods, and in like order, elementary education majors also currently teaching when this second study was conducted had mean MTAI scores of 61.2, 82, 73.5, and 69. In contrast to the correlation of .59 reported in the earlier study, a reduced correlation of .49 was now reported for the second and third scores of childhood and elementary education majors combined into one group. A correlation of .69 was reported for scores taken at the two inservice periods which indicated improved stability of MTAI scores after the subjects gained teaching experience.

The researchers' comments on why there should be such changes in MTAI scores gives strong support to the present study (Hoyt and Cook, 1960, p. 489).

> One might consider the attitudes developed in courses in education as academic attitudes in that they tend to disappear when the teacher faces the reality of dealing with pupils. The teachers revert to the attitudes which have been developed throughout their lifetime through their experiences at home, at school, and in other social groups. . . . Some teachers continue to gain with experience. A warm, friendly response from children has a desirable effect on attitudes. A cold, negative, hostile response from children has a deteriorating effect [underlines added by this writer].

Administering the MTAI to 87 elementary education students and 109 secondary education students just completing public school internship teaching, Day (1959) obtained a mean score of 50.9. A retest of 109 subjects who were teaching one year later (no breakdown according to school level reported) showed that there was a mean loss of 20 points to 30.9. Sixty-one graduates who prepared for but did not enter teaching had an initial score of 44.2 and a retest score a year later of 42.7. The drastic shift in the direction of negative attitudes for those that went ahead to teach and work with pupils compared with the negligible change in the attitudes of those not teaching gives further credence to a more detailed study of teacher-pupil interaction.

Day (1959) also compared test and retest MTAI scores for 154 students taken before and after eight weeks of teaching internship in public schools. The mean score for the first test was 64.4 and 60.2 on the second test -- a difference significant at the .05 level.

Similar results were found by Rabinowitz and Rosenbaum (1960) when they administered the MTAI to student teachers attending four municipal colleges of New York City and received retest responses from 343 of the subjects three years later. The scores of the 179 New York City teachers declined 23.9 points, from 62 to 38; the 164 teachers teaching outside of New York City had scores that declined 16.5 points, from 59.8 to 43.3. Analyses to seek evidence of a relationship between the difficulty of the school in New York City where the most drastic negative shifts occurred and the change in MTAI scores did not produce significant results.

An item analysis of the two sets of responses to the MTAI showed that fewer extreme choices and more moderate choices were made after three years -- a change which tends to lower MTAI scores. Rabinowitz and Rosenbaum (1960, p. 317) wrote:

> Taken at face value, the changes in response indicate that in the three years between testings the teachers became less concerned with pupil freedom and more concerned with establishing a stable, orderly classroom, in which academic standards received a prominent position. The change was accompanied by a decline in the tendency to attribute difficulty to the teacher or the school.

The present study questions the predictive validity of the MTAI and similar instruments when used to assess the future success of pre-service teachers. The above review of studies suggests that the MTAI's stability increases when individuals work with pupils. This issue may not be surprising when it is realized that the construction of the MTAI itself stands on data taken from "good" and "poor" in-service teachers and that the theoretical basis of the MTAI is concerned with the relationships between teachers' and pupils' attitudes. Use of the MTAI to predict the success of pre-service teacher candidates may violate the instrument's construct validity. It may be that the MTAI is more reflective of a teacher's prior experience with pupils and her accrued attitudes than it is predictive of the teacher's future rapport and success with pupils.

Objective classroom observations have been systemized to categorize classroom atmospheres and teachers' personalities. For example, Flanders' investigations (1965) with his interaction analysis technique have found differential teacher behavior in the use and timing of direct and indirect influence where "direct teachers lack those social skills of communication that are involved in accepting, clarifying, and making use of the ideas and feelings of students" and "give twice as many directions as the most indirect, and express eight times as much criticism" (p. 116). Also, in the research of Anderson et al. (1945, 1946), classroom observations found that the behavior of teachers correlated positively with the pupils' behavior and that teachers' dominative (producing teacher-pupil conflict) and integrative (producing teacher-pupil rapport) behavior could be reliably recorded. Such observational procedures require reliable observers who must spend considerable time in classrooms, thus limiting the number of classrooms that can be studied by an observer. The necessary tabulations of data and analysis added to the time-consuming observations create high costs for such information. Administrations of inventories, such as the MTAI and the "About My Teacher" inventory, require far less costs and many more classes can be studied with the same amount of time.

Theoretical Considerations. Theories of leader-follower relations apply to teacher-pupil interaction. Sanford (1952) and others have suggested that the search for leadership traits will not be successful unless the relation between leader and follower is studied. Sanford (1952, p. 329) wrote:

> The follower is always there when leadership occurs. It is he who accepts or rejects leadership. It is he who follows reluctantly or enthusiastically, obediently or creatively. In any situation where leadership occurs, he is there with all his psychological attributes. He brings with him his habits, attitudes, preferences, biases, and deep-lying psychological needs. If we know something about these psychological attributes we know something about the follower's "readiness for leadership." We know something about the sort of relations he will be inclined to establish with what sort of leaders.

Bass (1960, pp. 94-95) said it may be difficult to identify the leader and follower while observing interacting behavior because followership patterns may actually be leadership behavior aimed at times "to alter the behavior of a would-be agent of change who in turn is engaged in attempting to change behavior of the supposed followers."

Ryans (1963) has proposed a theoretical model for the study and analysis of teacher behavior. Based on the principles of information systems, the model considers teacher behavior to be the outcome of teacher information processing. Two major sets of inputs determine teacher information processing: (1) the capabilities and characteristics of the teacher, or his internal inputs; and (2) conditions external to the teacher, or his external inputs. Characteristic affective sets would be one internal input, and pupil behavior would be one external input. Teacher behavior and pupil behavior in any given teaching situation would provide feedback information. Ryans' information system theory hypothesizes that such feedback influences further teacher information processing and future teacher behavior in similar situations.

Osgood and Tannenbaum's (1955; also Osgood et al., 1957) "Congruity-Incongruity" theory states that continuous interactions among the cognitive events of persons will tend to establish pressures toward congruity or cognitive balance. Human nature tends to abhor mental incongruity or "cognitive dissonance" (Festinger, 1957) and continually strives to eliminate it in attitude change toward some state of congruity. Feedback information, therefore, provides both teachers and pupils the need and opportunity to find congruity in the interaction of their attitudes.

Objectives

When beginning teachers' MTAI scores tend to become more conservative after such teachers have experienced actual classroom work with pupils, the question can be raised, What are the effects of pupils' attitudes on beginning teachers' attitudes toward children? Also, when teachers' MTAI scores show a tendency to stabilize as teachers gain more teaching experience, it can be asked, What effects do the attitudes of experienced teachers toward children have on the attitudes of the pupils toward their teacher and school? If pupils' perceptions of their teachers are classed in terms of five merit dimensions--affective, cognitive, disciplinary, innovative, and motivational, which of these dimensions of teacher merit is most relevant to the teachers' measured attitudes?

Whenever correlations like those between MTAI scores and pupils' ratings of their teachers are obtained, the question can be raised, Which causes which? Do the teachers come to the classroom with relatively fixed attitudes toward pupils and school work--developed as a result of their life's experiences up to that point in the home, neighborhood, and school--such that they tend to behave toward pupils in ways more or less conducive to favorable attitudes of the pupils toward their teacher?

Or, on the other hand, do teachers enter the classroom with no such relatively fixed predisposition toward a particular kind of relationship with pupils? In the latter event, these attitudes might be considered to develop as a result of the way in which the teachers interact with the particular set of pupils to whom they are assigned for a given period? Suppose the pupils are inclined toward liking their teacher--as a result of their own previous experiences in the home, neighborhood, and school. They will tend to behave favorably and cooperatively toward the teacher, and the teacher, in turn, will develop favorable attitudes toward them.

Which of these two directions of causal influence predominates in the classroom? It is toward an answer to this major question and others that the present research is aimed.

To ascertain the general characteristics of teachers' and pupils' attitude relationships and the possible influences upon such interpersonal variables by third variables, the attitude relationships will be examined in groupings determined by the factors of teachers' years of experience and pupils' social-class background.

Chapter II

The Method

Instruments

Teachers' attitudes were measured with (a) the MTAI and (b) a semantic-differential (Osgood, Suci, & Tannenbaum, 1957) prepared for this study with "My Class" as the concept and 17 bipolar adjectives highly loaded on the evaluation dimension. The instrument, "My Class," was constructed especially for this study in such ways as to yield a more univocal, homogeneous, unidimensional measure of teachers' warm-sympathetic-permissive attitudes toward pupils than is provided by the MTAI. In factor analytic studies of ratings of many different concepts Osgood, Suci, and Tannenbaum (1957), found three general factors of meaning--"evaluative," "potency" and "activity." The first, the evaluative factor, was by far the most conspicuous and is the factor which corresponds to the valence or the positivity or negativity of attitudinal systems. According to the same researchers (1957, p. 72):

> A pervasive evaluative factor in human judgment regularly appears first and accounts for approximately half to three-quarters of the extractable variance. Thus the attitudinal variable in human thinking, based as it is on the bedrock of rewards and punishments both achieved and anticipated, appears to be primary--when asked if she'd like to see the Dinosaur in the museum, the young lady from Brooklyn first wanted to know, "Is it good or is it bad?"

A semantic differential evaluative rating instrument for teachers' attitudes toward their classes was developed taking bipolar adjective scales, such as worthless-valuable, good-bad, optimistic-pessimistic, that were reported to have high factor loadings on evaluative dimensions. (See Appendix A for a copy of *C*.)

Pupils' attitudes were measured with a 100-item "About My Teacher" inventory developed by Beck (1964) under the direction of N. L. Gage. This inventory yielded a total score (P_0, P_0'; unprimed symbols indicate pretests and primed symbols indicate posttests) and 11 subscores obtained on the basis of multiple-factor analyses (principal axis, rotated by Varimax with a statistical program developed by Dr. Donald Veldman on file at the Computation Center, The University of Texas) of the mean pupil ratings of their teachers. Identical or very similar factors based on items' factor loadings of at least .45 were extracted from separate analyses of middle-class and lower-class pupils' responses. With eigenvalue option set at 1 to extract only the most important factors (Harman, 1960, p. 363), a greater number of factors was consistently found in the pretest than in the posttest data. Hence, it seems that the pupils changed toward more generalized attitude dimensions as they got to know their teacher better. Coefficients of congruence were computed to estimate the degree of similarity between different samples' factors from a fixed set of variables (as originated by Burt, 1948, and recommended by Harman, 1960, pp. 257-258); a majority of paired factors had coefficients in the high .90s.

Our factors resemble those obtained by Beck (1964), but incomplete reporting of his factor loadings prevents statistical comparisons.

Our factor analyses provided the basis for eleven measures of dimensions of pupils' perceptions of their teachers, which are listed as follows in Tables 1-11 (See Apprndix B for a copy of the "About My Teacher" inventory):

Table 1

Sub-Factor P_1

This factor is composed of ten affective and nine cognitive items with one motivational item (No. 10). This factor resulted from analysis of advantaged pupils' posttest responses and reflects pupil perception of teachers' popularity or likeableness and ability to explain and communicate clearly.

1. Do you like your teacher?

6. Is your teacher usually kind to you?

7. Does your teacher usually clear up the things that puzzle you?

10. Does your teacher make the school work dull and uninteresting?

22. Does your teacher make difficult things easy to understand.

27. Does your teacher explain your lessons clearly?

31. Does your teacher break her promises?

36. Do you think your teacher understands people your age?

46. Do the other children like your teacher?

51. Does your teacher seem to like children?

56. Is your teacher fun to be with?

62. Can your teacher explain what you do not understand?

67. Does your teacher make sure everybody understands the lesson?

71. Is it hard to "get along" with your teacher?

72. Does your teacher give assignments that help you learn?

76. Do you think most of the pupils like your teacher?

77. Does your teacher explain the assignments clearly?

Table 2

Sub-Factor P_2

This factor is composed of six affective items which projects pupils' perception of teacher's personal popularity and warmth towards children. Similar results were found in all separate analyses of advantaged and disadvantaged pupils' responses to the "About My Teacher" inventory.

1. Do you like your teacher?

6. Is your teacher usually kind to you?

46. Do the other children like your teacher?

51. Does your teacher seem to like children?

56. Is your teacher fun to be with?

76. Do you think most of the pupils like your teacher?

Table 3

Sub-Factor P_3

This factor is composed of three affective items with factor loadings of .50 or better projecting pupils' perception of teacher's irritability and moodiness found in the analysis of pretest responses from advantaged pupils. F_{13} resembles Beck's (1964) results for Sub-Factor IC with items 21, 41, and 61.

41. Is your teacher often cross?

61. Is your teacher often in a bad mood?

71. Is it hard to "get along" with your teacher?

Table 4

Sub-Factor P_4

This factor is composed of eight cognitive items and one motivational item (No. 85) which reflects pupils' perception of teacher merit in lucid explaining ability and communication as measured by negative statements. It has appeared in all separate factor analyses of advantaged and disadvantaged pupils' responses to the inventory.

17. When you ask your teacher a question, do you often just get more confused?

32. When the teacher has finished explaining a subject, do you often feel you still do not understand it?

37. Do you often find that the teacher is confusing you?

42. Is Arithmetic harder than usual to understand this term?

52. When your teacher gives directions, do you often have trouble knowing what to do?

57. Do you often have difficulty understanding what your teacher is talking about?

85. Do you have to do lots of things in school that you don't want to do?

87. Is it sometimes hard to understand your teacher's explanations?

92. Do you feel that you are having trouble learning things this year?

Table 5

Sub-Factor P_5

This factor is composed of eight cognitive items and reflects pupils' perceptions of teacher effectiveness in explaining ability and communication as measured with positive statements. This factor has appeared in all separate factor analyses of advantaged and disadvantaged pupils' responses to the inventory.

22. Does your teacher make difficult things easy to understand?

27. Does your teacher explain your lessons clearly?

47. Do the diagrams your teacher uses help you to understand the subject?

62. Can your teacher explain what you do not understand?

67. Does your teacher make sure everybody understands the lesson?

72. Does your teacher give assignments that help you learn?

77. Does your teacher explain the assignments clearly?

82. Does the teacher use words that you understand?

Table 6

Sub-Factor P_6.

This factor is composed of nine disciplinary items projecting pupils' perceptions of their own disciplining behavior. This factor appeared in all separate factor analyses of advantaged and disadvantaged pupils' responses to the inventory.

3. Do the children behave well for your teacher?

8. Do some pupils break the class rules a lot?

23. Does your class sometimes get in an "uproar"?

28. Is your room quiet and orderly even when the pupils work together?

43. Do other pupils bother you when you are trying to do your school work?

53. Are some pupils always showing off in class?

68. Is your class quiet when the teacher leaves the room?

88. Are the children usually quiet in your room?

93. Do the pupils in this class often play tricks on each other when the teacher is not looking?

Table 7

Sub-Factor P_7

This factor of three disciplinary items refers to pupil perception of teacher's disciplining behavior. This factor resulted from posttest responses of advantaged pupils and pretest responses of disadvantaged pupils.

63. Does your teacher succeed in keeping the pupils under control?

73. Is your teacher able to keep the children quiet in the classroom?

83. When the class has been outside, does the teacher get the pupils in and settled down easily?

Table 8

Sub-Factor P_8

This factor of three innovative items refers to pupil perception of teacher's use of audio-visual materials and field trips. Similar factors have resulted from separate analyses of responces to the inventory from advantaged and disadvantaged pupils.

49. Does your class go on field trips that help you understand what you are studying?

74. Does your teacher often show a movie to explain something you are studying?

89. Does your teacher ever use a machine that shows pictures or diagrams on the wall when she is explaining things?

Table 9

Sub-Factor P_9

This factor of three innovative items refers to pupil perceptions of their teacher's tendency to individualize instruction in the choice of materials and methods. This result was found in separate factor analyses for advantaged and disadvantaged pupils.

19. Do all the pupils in the class use the same books for the same subjects (except in "Reading")?

29. Do you always study the same subjects at the same time, on a daily or weekly schedule?

94. Do all the pupils in the class use the same books at the same time?

Table 10

Sub-Factor P_{10}

Composed of six motivational items, this factor reflects pupils' perceptions of teacher effectiveness in motivating behavior, i.e.; in encouraging and inspiring pupils to be interested and enthusiastic toward learning. This factor is comprised of items stated in positive terms and was found in analyses for advantaged and disadvantaged pupils.

15. Does your teacher make you feel like doing extra work outside class?

20. Does your teacher make you want to spend extra time on your work?

30. Does your teacher usually make you want to find answers to the questions you have about school subjects?

35. Does your teacher make you feel like learning a lot on your own?

55. Does your teacher make you feel like working real hard at your school work?

60. Does your teacher make you feel like reading in books and magazines in addition to reading the textbook?

Table 11

Sub-Factor P_{11}

This factor contains two motivational items and one innovative item (No. 84). It reflects pupils' perception of teacher's ability to encourage and inspire pupils to be interested in learning. The items in this factor are negatively stated. Similar factors have been found in analyses of responses by advantaged and disadvantaged pupils.

80. Is your school work less interesting this year than it was last year?

84. Does your teacher seem to think the answer to a problem is more important than how you got it?

90. Is your teacher making school work less interesting for you this year?

Table 11

Sub-Factor P_{11}

This factor contains two motivational items and one innovative item (No. 84). It reflects pupils' perception of teacher's ability to encourage and inspire pupils to be interested in learning. The items in this factor are negatively stated. Similar factors have been found in analyses of responses by advantaged and disadvantaged pupils.

80. Is your school work less interesting this year than it was last year?

84. Does your teacher seem to think the answer to a problem is more important than how you got it?

90. Is your teacher making school work less interesting for you this year?

For measures of teachers' attitudes, the total MTAI scores were supplemented by the three main MTAI factors extracted by Horn and Morrison (1965). Their findings support their contention that the MTAI is not a unifactor attitude. The three main factors extracted by Horn and Morrison with items correlating .35 or better with one factor and less than .35 with other factors are listed in Tables 12-14.

Adequacy of Obtained Measures. The stability of the two sets of variables, teacher and pupil attitudes, was estimated in terms of the "test-retest" correlation between them, namely, $r_{T_nT_n'}$, and $r_{P_nP_n'}$. Reliability was estimated in other than a test-retest sense by using (a) the Horst formula (Horst, 1949) to estimate the reliability of the mean pupils' ratings on each occasion, and (b) the Spearman-Brown formula (Guilford, 1965, pp. 457-458) and the Guttman formula (Guttman, 1945) to estimate the reliability, in the sense of internal consistency of the measures of teachers' attitudes on each occasion.

Rectilinearity was tested by inspection of scatter plots.

Table 12

Factor I (T_1)

Traditionalistic versus Modern Beliefs about Child Control (from Horn and Morrison, 1965)

MTAI Item Number	MTAI Statement
12	Pupils should be required to do more studying at home.
19	Pupils have it too easy in the modern school.
21	Pupils expect too much help from the teacher in getting their lessons.
23	Most pupils do not make an adequate effort to prepare their lessons.
24	Too many children nowadays are allowed to have their own way.
35	Discipline in the modern school is not as strict as it should be.
50	Teachers should exercise more authority over their pupils than they do.
57	Many teachers are not severe enough in their dealings with pupils.
63	Too much nonsense goes on in many classrooms these days.
65	Children are too carefree.
76	There is too much leniency today in the handling of children.
80	Children nowadays are allowed too much freedom in school.
92	There are too many activities lacking in academic respectability that are being introduced into the curriculum of the modern school.
104	Teachers should consider problems of conduct more seriously than they do.
110	As a rule teachers are too lenient with their pupils.
116	Most pupils have too easy a time of it and do not learn to do real work.
126	Children today are given too much freedom.

Table 13

Factor II (T_2)

Unfavorable versus Favorable Opinions about Children
(from Horn and Morrison, 1965)

MTAI Item Number	MTAI Statement
6	Most pupils do not appreciate what a teacher does for them.
22	A teacher should not be expected to sacrifice an evening of recreation in order to visit a child's home.
25	Children's wants are just as important as those of an adult (negative).
29	Children have a natural tendency to be unruly.
30	A teacher cannot place much faith in the statements of pupils.
37	Standards of work should vary with the pupil (negative).
38	The majority of children take their responsibilities seriously (negative).
74	Pupils usually are not qualified to select their own topics for themes and reports.
77	Difficult disciplinary problems are seldom the fault of the teacher.
83	Children are unable to reason adequately.
94	Most pupils are unnecessarily thoughtless relative to the teacher's wishes.
96	Pupils are usually slow to "catch on" to new material.
106	A teacher should not be expected to do more work than he is paid for.
113	Pupils like to annoy the teacher.
114	Children usually will not think for themselves.
119	A teacher seldom finds children really enjoyable.
121	It isn't practicable to base school work upon children's interests.
124	Children are usually too inquisitive.
127	One should be able to get along with almost any child (negative).
128	Children are not mature enough to make their own decisions.
130	Children will think for themselves if permitted (negative).
132	Children just cannot be trusted.
134	Most pupils are not interested in learning.

Table 14

Factor III (T_3)
Punitive Intolerance versus Permissive Tolerance for Child Misbehavior
(from Horn and Morrison, 1965)

MTAI Item Number	MTAI Statement
2	Pupils who "act smart" probably have too high an opinion of themselves.
10	It someiimes does a child good to be criticized in the presence of other pupils.
11	Unquestioning obedience in a child is not desirable (negative).
13	The first lesson a child needs to learn is to obey the teacher without hesitation.
28	The boastful child is usually overconfident of his ability.
32	A pupil should be required to stand when reciting.
41	Imaginative tales demand the same punishment as lying.
43	A good motivating device is the critical comparison of a pupil's work with that of other pupils.
44	It is better for a child to be bashful than to be "boy or girl crazy."
47	The child must learn that "teacher knows best."
56	At times it is necessary that the whole class suffer when the teacher is unable to identify the culprit.
69	Assigning additional school work is often an effective means of punishment.
70	Dishonesty as found in cheating is probably one of the most serious of moral offenses.
72	Pupils must learn to respect teachers if for no other reason than that they are teachers.
75	No child should rebel against authority.
85	The child who misbehaves should be made to feel guilty and ashamed of himself.
86	If a child wants to speak or to leave his seat during the class period, he should always get permission from the teacher.
88	Throwing of chalk and erasers should always demand severe punishment.
100	Children must be told exactly what to do and how to do it.
103	Shy pupils especially should be required to stand when reciting.
115	Classroom rules and regulations must be considered inviolable.
129	A child who bites his nails needs to be shamed.

Subjects

The recruiting procedures to obtain subjects were as follows: Superintendents of school districts and their administrative associates in Calif. and Texas were contacted in person and the purposes and requirements of the study were explained to them. Requests for permission to conduct the necessary teacher and pupil measurements met with varied responses. Some superintendents gave their preliminary approval, but allowed their various principals the final decision in permitting the testing of their teachers and pupils. Several school districts decided not to participate, because the validity of the instruments to be used was questioned. Other school superintendents were quite willing to cooperate and offered every teacher in their schools meeting the criteria used in selecting subjects for the study. One school district granted its teachers the prerogative of deciding whether or not to participate in the study; however, all beginning teachers in that school district volunteered to cooperate. The danger of violating internal validity by providing teachers and pupils information that might bias their responses to the inventories was a constant concern and was largely overcome by cautioning administrators not to discuss the study's specific concerns with subjects. All contacts with teachers by the investigator to discuss their participation in the study were brief, and the nature of the study was described only in general terms.

Recruiting a sufficient number of beginning teachers teaching their first year as regular classroom teachers became much more of a problem than finding enough experienced teachers. In the months of May through August, school administrators have the task of recruiting, interviewing, and selecting prospective teachers, and actually do not know for sure what numbers of beginning teachers they will have and where they will be assigned by the opening of the school year in September. Most of the eight school districts participating in the study seemed to have more beginning teachers assigned to primary grades than intermediate grades. Therefore, the recruitment of subjects for the study proceeded with the search for beginning teachers. Whenever beginning teachers were assigned or decided to participate in the study, experienced teachers in the same school buildings were requested and recruited.

As can be seen, a sense of tentativeness complicated the recruiting procedures. The original plans for the study called for at least 50 beginning teachers and 50 experienced teachers, and planned that only experienced teachers with five to ten years of teaching experience would be selected. However, due to the difficulties in locating sufficient beginning teachers, no restrictions were made with respect to the number of years taught by the experienced teachers. Also, it was found that many principals do not maintain records of the actual number of years taught by their teachers and do not have easy access to such records if they are available. When the research assistants conducted the first administration of the attitude inventories, it was found that the experienced teachers' years of teaching ranged from one year to forty-one years and that the mean number of years taught was 9.6 years. (See Table 15.) The resulting sample of experienced teachers did, however, provide the great opportunity to examine the possible influence of teaching experience over a wide range. Because subjects had to be taken wherever beginning teachers in Grades 4, 5, and 6 were made available by superintendents and principals, no strong assumption of randomization can be made with respect to the group recruited. Since the study's beginning teachers represented all or most of the participating districts' beginning 4th, 5th and 6th grade teachers, results of the study can be generalized to the extent that results from such beginning teachers represent their current population of beginning teachers. Also, tentative generalizability should be assumed for results on the experienced teachers, although in most schools all or most of the experienced intermediate grade teachers were recruited. The fact that experienced teachers were recruited after beginning teachers were found in their school buildings and some experienced teachers in the same school were not offered or recruited causes this lack of definite generalizability. No pupil was reported to request an excuse, or was excused, from the administration of the "About My Teacher" inventory if present at school during the administration of it.

Data were first obtained in the 1964-1965 school year from 100 teachers of Grades 4 (N = 35), 5 (N = 33), and 6 (N = 32) and their pupils (pretest N = 2,952; posttest N = 2,871) in 34 public elementary schools located mainly in middle-class neighborhoods of San Francisco, California; Austin, Texas; and San Antonio, Texas.

In the 1965-1966 school year, data were collected from 112 teachers and their pupils (pretest N = 2,824 pupils; posttest N = 2,777 pupils) in 20 schools located mainly in lower-class neighborhoods of cities in Texas. Some classrooms in middle-class neighborhoods were tested so that data could be exchanged between the two years' testings to form roughly equal-sized samples homogeneous in social class. Thus, by the end of the fall semester, 1965-1966, data had been secured for 102 teachers and their pupils in 32 schools situated in middle-class neighborhoods (in Grade 4, N = 33; Grade 5, N = 36; Grade 6, N = 33) and 110 teachers and their pupils in 18 schools situated in lower-class neighborhoods (in Grade 4, N = 39; Grade 5, N = 38; Grade 6, N = 31; Grade 7, N = 2).

Social class status was determined by consultation with school administrators and informal inspection of neighborhoods. Family income ($4,000 or less annually for lower class; $6,000 or more for middle class) and father's occupation (blue collar and unskilled for lower class; white collar and professional for middle class), as ascertained from school administrators, were the main criteria for establishing social class status.

Procedure

In the first year, pretests of teachers' and pupils' attitudes were made early in the school year beginning in September 1964. About

Table 15

Teachers in Study: Grade Levels, Years of Experience, and Pupils' Social Class

Teachers' Years of Experience	Middle Class				Lower Class					Total
	Grade Level									
	4	5	6	N	4	5	6	7	N	
0	14	9	11	34	8	8	3	1	20	54
1	0	3	2	5	2	1	2	0	5	10
2	2	1	1	4	1	2	1	0	4	8
3	1	2	0	3	3	2	1	1	7	10
4	2	1	0	3	4	1	2	0	7	10
5	0	2	2	4	2	3	3	0	8	12
6	0	4	3	7	1	3	0	0	4	11
7	1	1	0	2	2	1	0	0	3	5
8	2	1	5	8	0	2	1	0	3	11
9	3	1	4	8	2	0	3	0	5	13
10	1	2	2	5	1	0	0	0	1	6
11	0	1	0	1	1	0	1	0	2	3
12	0	1	2	3	1	1	1	0	3	6
13	0	0	0	0	3	0	0	0	3	3
14	2	0	0	2	0	0	1	0	1	3
15	0	0	0	0	0	1	0	0	1	1
16	0	1	1	2	0	2	1	0	3	5
17	0	0	0	0	1	2	0	0	3	3
18	0	0	0	0	0	2	2	0	4	4
20	0	0	0	0	1	1	1	0	3	3
21	0	0	0	0	1	1	1	0	3	3
22	0	0	0	0	0	1	1	0	2	2
23	1	1	0	2	0	0	1	0	1	3
24	1	0	0	1	1	1	1	0	3	4
25	0	1	0	1	0	0	0	0	0	1
26	1	1	0	2	0	0	0	0	0	2
27	0	1	0	1	0	0	0	0	0	1
28	0	1	0	1	0	1	2	0	3	4
29	0	0	0	0	1	0	2	0	3	3
30	0	0	0	0	1	0	0	0	1	1
33	0	0	0	0	1	0	0	0	1	1
35	0	0	0	0	1	0	0	0	1	1
38	0	1	0	1	0	0	0	0	0	1
40	1	0	0	1	0	0	0	0	0	1
41	1	0	0	1	0	0	0	0	0	1
44	0	0	0	0	0	1	0	0	1	1
46	0	0	0	0	0	1	0	0	1	1
Totals	33	36	33	102	39	38	31	2	111	212

Average years taught:

By teachers of middle-class pupils:	By teachers of lower-class pupils:
2-8 years - 5.5 years	2-8 years - 4.6 years
9-41 years - 17.2 years	9-46 years - 19.9 years

one-half of the posttests were made in November 1964, and the remaining posttests in January 1965, in order to determine whether results differed according to length of the period of teacher-pupil interaction. Since no significant differences between means or correlations involving November and January measures were found, the two sets of posttest measures were combined.

In the second year, the data was collected with pretests in September 1965 and posttests in January 1966. The pupil inventory was administered in the subjects' classrooms by trained assistants, while the teacher self-administered his inventories elsewhere in the school building. To provide maximum uniformity and produce the desired effectiveness in the administration of the instruments, training sessions were held with the research assistants and a detailed guide, "Directions for Administrators," was followed by the research assistants (See Appendix C for a copy of the guide).

The Cross-Lagged Panel Correlation Technique

The technique of cross-lagged panel correlation (Campbell, 1963; Campbell & Stanley, 1963) was applied to ascertain the direction of influence in the relationship between the attitudes of teachers and the attitudes of pupils. As Campbell put it:

> Where two data series correlate, . . . the direction of causation may be equivocal . . . . In such a situation $\underline{r}_{C_n E_{n+1}}$ should be greater than $\underline{r}_{C_{n+1} E_n}$, where $\underline{C}$ stands for cause, $\underline{E}$ for effect. These cross-lagged series correlations can frequently differentiate the relative plausibilities of competing causal interpretations. When both variables are on both sides of the comparison, i.e., when relative correlation magnitude is used rather than the absolute level of $\underline{r}_{C_n E_n}$, secular trends of long-term cycles are controlled . . . . Our criterion becomes $\underline{r}_{C_1 E_2} > \underline{r}_{C_2 E_1}$ (p. 236).

Campbell cited as an illustrative question, "Does lack of parental love cause children to be behavior problems, or does a difficult child cause parents to love less?" (p. 236). In this study, the comparable question is, Do unsympathetic and unfavorable attitudes of the teacher toward pupils cause her pupils to develop a dislike of their teacher, or do hostile, aggressive pupils cause the teacher to develop unfavorable and unsympathetic attitudes toward pupils? As Campbell (1963) stated, "While in many such instances, the causal relations are doubtless in both directions, an index of relative preponderance would be very valuable, and where a preponderance is clear, the status of the dominant hypothesis is clearly enhanced, and the credibility of the weaker one must be based upon other bodies of data" (p. 236).

By this technique, we infer that pupils' attitudes influence teachers' attitudes if

ρ Teachers' pretest measures *vs.* pupils' posttest measures. $<$ ρ Teachers' posttest measures *vs.* pupils' pretest measures.

On the other hand, we infer that teachers' attitudes influence pupils' attitudes if

ρ Teachers' pretest measures *vs.* pupils' posttest measures. $>$ ρ Teachers' posttest measures *vs.* pupils' pretest measures.

Campbell (1963) has developed the argument that such cross-lagged series can differentiate between opposing interpretations of the causal relationship between two variables.

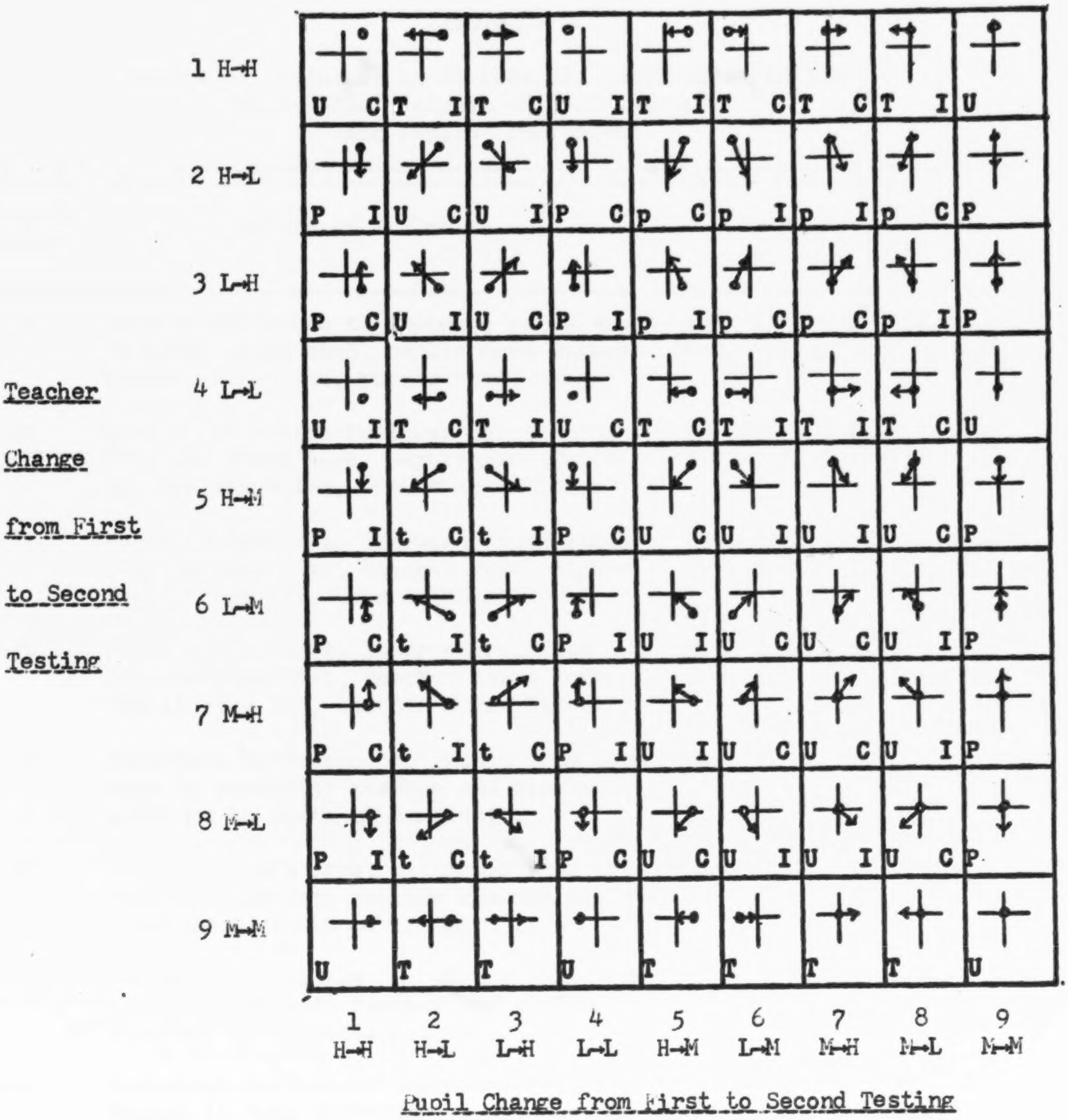
Coefficients of correlation between the two attitude scores of the teachers and the class means of 12 different scores for pupil attitudes were computed for both pretest and posttest data for the total sample (N = 212), for three sub-groups based on years of teaching experience (0-1 year, 2-8 years, and 9-46 years), for two sub-groups based on pupils' social class, and for six sub-groups based on both teaching experience and social class.

The Frequencies-of-Shift Technique

An analysis of the frequencies of various kinds of shifts was also used to ascertain direction of influence. We tabulated the frequencies of teacher-class pairs that shifted between first and second testings in the various ways shown in Figure 1. Such shifts could be interpreted as (a) raising or lowering (i.e., shifting toward congruity or incongruity, respectively) the correlation between teachers' and pupils' attitudes, and (b) indicating whether the teachers or the pupils exerted the influence toward change.

Choice of chi square for appropriate tests of significance seemed reasonable, since the study's data could be reduced to frequencies and the evaluation of change over a period of time could be made by direct computation of probabilities. Also, plotting preliminary 2 x 2 contingency tables of the movement or lack of movement of teachers and pupils across their measures' medians revealed a tendency of subjects to remain in or move toward greater attitude balance or congruity.

The first step in arranging the study's data into the form of frequencies was to find the medians for each set of teachers' and pupils' measures. Each set of measures was arranged in order of magnitude by using the IBM 082 Electronic Sorter to sort the IBM card decks along the columns on which each particular measure was key-punched. After the cards were sorted in order, a listing or copy of the measures was printed on the IBM 407, Accounting Machine printer. In all, 408 listings were printed for the 34 measures (5 pretests and 5 posttests for teachers; 12 pretests and 12 posttests for pupils) for the total sample, two social-class groups, three years of experience groups, and six groups established by social class and years of


Teacher Change from First to Second Testing
1 H→H
2 H→L
3 L→H
4 L→L
5 H→M
6 L→M
7 M→H
8 M→L
9 M→M
U C
T I
T C
U I
T I
T C
T C
T I
U
P I
U C
U I
P C
p C
p I
p I
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P
U
T
T
U
T
T
T
T
U
1 H→H
2 H→L
3 L→H
4 L→L
5 H→M
6 L→M
7 M→H
8 M→L
9 M→M
Pupil Change from First to Second Testing

Arrows both in the margins and in the cells denote direction of change in relationship to the medians of teachers' and pupils' measures; lack of arrow denotes no change. H = above median; L = below median; M = on median; T = teacher is dominant influence; P = pupils are dominant influence; U = uncertain influence; t = teacher causes pupils to change more than pupils cause teacher to change; p = pupils cause teacher to change more than teacher causes pupils to change; C = continuation in or change toward state of congruity; and I = continuation in or change toward state of incongruity. Whether cells in row 9 and column 9 are states of congruity or incongruity can not be determined.

Figure 1. Possible Resolutions and Nature of Influence in the Relationship of Teachers' and Pupils' Attitudes

Table 16

Nature of Influence in 81 Possible Resolutions in the Cause-Effect Relationship of Teachers' and Pupils' Attitudes

Category Number	Nature of Influence	Cells*
I.	Teacher influence to increase correlation (Teacher stays high, pupils move higher. Teacher stays low, pupils move lower.)	1.3, 1.6, 1.7, 4.2, 4.5 4.8, 5.2, 6.3, 7.3, 8.2
II.	Teacher influence to lower correlation (Teacher stays high, pupils move lower. Teacher stays low, pupils move higher.)	1.2, 1.5, 1.8, 4.3, 4.6 4.7, 5.3, 6.2, 7.2, 8.3
III.	Pupil influence to increase correlation (Pupils stay high, teacher moves higher. Pupils stay low, teacher moves lower.)	2.4, 2.5, 2.8, 3.1, 3.6 3.7, 5.4, 6.1, 7.1, 8.4
IV.	Pupil influence to lower correlation (Pupils stay high, teacher moves lower. Pupils stay low, teacher moves higher.)	2.1, 2.6, 2.7, 3.4, 3.5 3.8, 5.1, 6.4, 7.4, 8.1
V.	Uncertain influence, no change from pretest to posttest; teacher and pupils continue in state of congruity.	1.1, 4.4
VI.	Uncertain influence, no change from pretest to posttest; teacher and pupils continue in state of incongruity.	1.4, 4.1
VII.	Uncertain influence, no change from pretest to posttest; teacher and pupils continue in uncertain state.	1.9, 4.9, 9.1, 9.4, 9.9
VIII.	Uncertain influence, teacher and pupils change in same direction, i.e., staying in state of congruity.	2.2, 3.3, 5.5, 5.8, 6.6 6.7, 7.6, 7.7, 8.5, 8.8
IX.	Uncertain influence, teacher and pupils change in opposite directions, i.e., staying in state of incongruity.	2.3, 3.2, 5.6, 5.7, 6.5 6.8, 7.5, 7.8, 8.6, 8.7
X.	Uncertain teacher influence causing pupils to change.	9.2, 9.3, 9.5, 9.6, 9.7 9.8
XI.	Uncertain pupil influence causing teacher to change.	2.9, 3.9, 5.9, 6.9, 7.9 8.9

* Cell designations from Figure 1; first numbers represent teachers' row and second numbers represent pupils' column.

teachers' teaching experience and the total sample. Each of the 408 listings of measures were examined to find the median or a number which would act as a mid-point among the measures. Those measures above the medians would be classified as high attitudes, and those below the medians would be classified as low attitudes.

The second step to provide frequencies of shift for tests by chi square concerned attention to all of the possible changes subjects could make in relation to the medians. A 9 x 9 table was devised to cover all of the contingencies in resolution from pretest to posttest. Teachers' and pupils' measures could remain without change relative to pretest medians and posttest medians [High to High (H-H), Low to Low (L-L), and Median to Median (M-M)]. They could move from pretest medians across posttest medians [Median to High (M-H), and Median to Low (M-L)], or move to and across posttest medians from positions above or below pretest medians [High to Low (H-L), Low to High (L-H), High to Median (H-M), and Low to Median (L-M)]. By interrelating teachers' and pupils' resolutions, 81 resolutions for the relationship of teachers' and pupils' attitudes are found possible.

In the third step as shown in Table 16, the nature of influence operating in each of the 81 resolutions was judged to be teacher caused or pupil caused on the basis of who moved most and who moved least in relation to the median positions of their pre- and posttest measures. That is, if the teacher stayed high and the pupils moved from low to high, then the teacher's influence would be considered the cause of the pupils' change. Those cells in which it could not be determined whether teachers' or pupils' influence was operating were considered uncertain, such as teachers and pupils remaining in (H-H) in both pretest and posttest.

The fourth step involved one more interpretation of the nature of influence in the resolutions. Whether final resolutions between teachers' and pupils' attitudes were congruent or incongruent states, consideration was given the complementarity of teachers' and pupils' attitudes and whether their relationship was positively or negatively correlated. Thus, consideration of each of the cells was made to determine whether it was a state of congruity or incongruity. If a cell showed teachers and pupils moving to or remaining in resolutions where their attitudes were more similar, then that cell was considered a state of congruity. If a cell showed teachers' and pupils' attitudes moving to or remaining in resolutions where their attitudes were more dissimilar, then that cell was considered a state of incongruity.

Thus, a table of 81 possible resolutions based on relationships of teachers' and pupils' attitudes to their measures' medians was developed, and two logical interpretations were made for each resolution with respect to its being caused by either teacher, pupil, or uncertain influence and with respect to its leading to a state of congruity, of incongruity, or of uncertain attitude adjustment. Figure 1 and Table 16 present the results of following such steps.

Hypotheses were formed by stating dichotomies in which contradictory combinations of categories from Table 16 are contrasted for directional differences to be tested by one-tailed chi-square tests. The combinations were made by adding categories together that were similar in value. It should be pointed out that Hypotheses One and Two differ on the basis of actual change being necessary in the latter hypothesis, but not in the former--thus the use of the term, influence, in Hypothesis Two. The hypotheses are as follows:

Hypotheses:

H_1: Teacher-class pairs either continuing in or shifting toward congruity (both above or both below their medians) are more frequent than those continuing in or shifting toward incongruity;

Congruity		Incongruity
I, III, V, and VIII	>	II, IV, VI, and IX

H_2: Teacher-class pairs shifting toward congruity are more frequent than those shifting toward incongruity;

Congruity Influence		Incongruity Influence
I and III	>	II and IV

H_3: Teacher-class pairs showing teacher influence toward either congruity or incongruity are more frequent than those showing pupil influence toward either congruity or incongruity;

Teacher Influence		Pupil Influence
I, II, and X	>	III, IV, and XI

H_4: Teacher-class pairs showing teacher influence toward congruity are more frequent than those showing pupil influence toward congruity.

Teacher Influence Towards Congruity		Pupil Influence Towards Congruity
I	>	III

H_5: Teacher-class pairs showing teacher influence toward incongruity are more frequent than those showing pupil influence toward incongruity.

Teacher Influence Towards Incongruity		Pupil Influence Towards Incongruity
II	>	IV

Computer analyses made it possible to tabulate the frequencies for the 9 x 9 tables for the teachers' and pupils' measures and add the frequencies for the following 3 x 3 table according to the causal interpretations given each cell. Reference can be made to Table 16 for identification of the category numbers in the 3 x 3 table below. Yee's (1965) Appendix I contains three examples of 9 x 9 tables with frequencies tabulated into 81 cells, 3 x 3 tables showing the categorization of the frequencies, and the chi squares for the five hypotheses. Yee's (1965) Appendix I also presents the same examples of teacher-pupil attitude relationships with only the "unambiguous" cells counted, that is, those 45 cells identified as "T," "P," or "U" for dominance in causation as shown in Figure 1. It can be seen in the three examples given that the differences in chi squares between the use of all 81 cells or a restricted use of cells in tabulating frequencies are in both directions, but generally slight in overall results. The frequencies in question under such restrictions are slight, but chi squares just barely significant with the unrestricted model may be weaker or stronger in the restricted tabulation of frequencies. The tabulation of frequencies will continue with the unrestricted model of 81 cells, since there is overall consistency in the interpretation of change and in whether teachers or pupils dominate in causation. The cells that may be considered "ambiguous" show that both teachers and pupils change, but one moves across the median (effect) and the other moves, but not across the median (cause).

	Congruity	Incongruity	Uncertain
Teacher	I	II	X
Pupil	III	IV	XI
Uncertain	V & VIII	VI & IX	VII

When the frequencies were found for the 3 x 3 table above, the five hypotheses were tested by chi square computation with the following formula (Guilford, 1965, p. 23):

$$x^2 = \frac{2(f_o - f_e)^2}{f_e}$$

when f_o = observed frequencies

f_e = expected frequencies

The hypotheses as stated call for a directional or a one-tailed test of significance; therefore, the .05 level of significance requires a chi-square value of at least 2.71 with 1 df.

The Analysis-of-Shift Technique

In preliminary work with the cross-lagged panel correlation technique and the frequencies-of-shift technique, results from the two methods appeared to be inconsistent and often in contradiction. Closer study of such results indicated that the cross-lagged panel correlation technique has a major shortcoming in ascertaining the direction of influence between correlated variables.

In the finding, $r_{P_nT_n'} > r_{T_nP_n'}$, the assumptions of the cross-lagged panel correlation technique would have us infer that pupils' attitudes, P_n, influence the ~~pupils~~ teachers' perceptions, T_n. But this inference is not the only possible one. It may be that these *rs* could result, not from greater pupil influence toward congruity, but rather from greater teacher influence toward *in*congruity. That is, the teachers' influence may be greater than the pupils', but it is impossible to tell this from the cross-lagged *rs* because the latter confound, or prevent us from distinguishing between, the degree and the direction of influence stemming from the two correlated variables.

Also, if the difference between cross-lagged *rs* is found, such that, for example, $r_{T_nP_n'} > r_{P_nT_n'}$, one inference could be that teachers' attitudes, T_n, influence the pupils' attitudes, P_n. Another explanation for $r_{T_nP_n'}$ being greater than $r_{P_nT_n'}$, may be that pupils' attitudes cause teachers' attitudes to be less positively correlated, i.e., in an incongruent direction.

This unexpected finding in the use of the cross-lagged panel correlation technique has also been found independently by Rozelle (1965) who concluded that with four competing hypotheses, i.e., A increases B, B increases A, A decreases B, and B decreases A, "This finding has both greatly increased the complexity of considerations involved in the Cross-Lagged Panel Corelation, and greatly reduced its apparent utility as a method" (p. 51).

To obtain a basis for distinguishing direction from degree of influence, and hence for sharpening the interpretation of the relationship between teachers' attitudes and pupils' perceptions, we have applied the frequencies-of-shift analysis described above. Because of its ability to distinguish congruent influence from incongruent influence, the frequencies-of-shift technique can account for varying same-occasion and cross-lagged correlational results which are perplexing and lead toward null conclusions with the cross-lagged panel correlation technique.

Another technique was developed to complement the frequencies-of-shift method. By assessing shifts in relation to variables' medians, the frequencies-of-shift technique allows a majority of cases to remain undetermined; since many cases do not change in relation to medians from pre- to posttest occasions. Since the outstanding cases (about 40%) that do shift in relationship to medians provide the frequencies for the tests of significance, the hypotheses dealing with influence are concerned with a portion of the sample and not all cases.

The analysis-of-shift technique was developed to overcome the numbers of cases indeterminable as to influence and tabulate each teacher-class unit under one form of teacher or pupil influence. While the frequencies-of-shift technique requires the tabulation of the outstanding cases that shift in relationship to variables' medians, the analysis-of-shift technique counts all cases in the sample undergoing analysis for tests of hypotheses. The former technique may be likened to the use of a magnifying glass, and the latter technique in comparison is like a microscope.

The following procedures were conducted to derive frequencies for chi-square tests of significance similar to the statistics used for the frequencies-of-shift method:

(1) We converted the raw scores of teachers' and pupils' attitudes to standard scores.

(2) The nature of or direction of influence -- congruent or incongruent -- is determined by seeing if cross-products of posttest Z scores are more positive or negative than cross-products of pretest Z scores. If the cross-product of posttest Zs, $Z_{T_n'}Z_{P_n'}$, is more positive than $Z_{T_n}Z_{P_n}$, we say the direction of influence is congruent, i.e., the relationship between the teacher and her class helps make the overall correlation more positive. If the cross-product of posttest Zs is more negative, we say the direction of influence is incongruent, i.e., the relationship between the teacher and her class helps make the overall ocrrelation more negative. This manner of assessing direction of influence is logically connected with the basic formula for product-moment correlation coefficients, that is, $\underline{r} = \frac{\Sigma Z_x Z_y}{N - 1}$.

(3) The source of influence is determined by taking cross-lagged Z products, $Z_{T_n}Z_{P_n'}$, and $Z_{P_n}Z_{T_n'}$. When direction of influence is congruent, the more positive product is classed as source, i.e., it helps to increase the cross-lagged correlation where effector's Z score is from pretest occasion and Z score of party influenced is posttest. When direction of influence is incongruent, the more negative product is classed as source, i.e., it helps to increase the cross-lagged correlation where effector's Z score is from posttest occasion and Z score of the one influenced is pretest.

As described above under discussion of the frequencies-of-shift technique, frequencies obtained for Hypotheses Three, Four, and Five were tested by chi-square statistics.

In computing all chi squares for frequencies obtained with the frequencies-of-shift and analysis-of-shift techniques, Yates' correction for continuity (Guilford, 1965, pp. 237-239) was applied to the frequencies. Yates' correction reduces obtained frequencies that are greater than expected by .5 each and increases obtained frequencies that are less than expected by .5 each. The need for the correction arises from the fact that small frequencies vary in discrete jumps from one whole number to another, and therefore, the size of computed chi squares must be reduced to fit the chi-square table, which gives values from a continuous scale. Since a chi-square test is a two-tailed test and tables of chi-square probabilities are given for two-tailed tests, the probabilities will be halved for the one-tailed tests of this study. A one-tailed or directional chi-square test has logical meaning in the hypotheses here, because each hypothesis states "a clear case of a simple outcome that can go in either of two opposite directions" (Guilford, 1965, p. 234).

Chapter III

Results, Discussion and Conclusions

Reliability of Measurements

Since measurements obtained during the course of any study will have been determined by their "true" values in combination with conditions that may have provided error components, the reliability or accuracy of obtained measurements needs to be ascertained and evaluated. According to Guilford (1965, p. 439), "The reliability of any set of measurements is logically defined as the proportion of their variance that is true variance." Whether the variances in teachers' and pupils' scores are genuine and not due to random errors of measurement is a question that is especially important in this study of the direction of causation in teacher-pupil attitudes, i.e., of significant changes in attitude measurements. Therefore, the interpretation of results can proceed only after this question is settled.

Adequacy of Teachers' Measurements. A unidimensional scale measures one attitude, and persons with equivalent scores on such a scale have about the same attitude. If items in an attitude scale are highly interdependent, then the scale may be considered homogeneous or internally consistent. In the study of attitudes, unidimensional and homogeneous measures of attitudes are desirable so that obtained measurements can be better understood and applied to purposes for which they were intended. Since attitudes are emotionalized predispositions to believe, feel, and react, the measurement of attitudes is necessarily indirect. The reliability can be determined to some extent for an attitude inventory to see if it can provide measurements that fulfill their purposes. For this study, a reliable measure of teachers' warm-evaluative-sympathetic-permissive attitudes toward pupils is desired.

The coefficient of internal consistency provides an "on-the-spot" estimate of reliability and indicates "how closely the obtained score comes to the score the person would have made at this particular time if we had had a perfect measuring instrument" (Guilford, 1965, p. 452). With a high coefficient of internal consistency, an attitude inventory can be considered to measure a single attitude. Are the scores obtained for teachers in this study accurate indicators of something at the time the attitude inventories were administered? To answer this question, estimates of the internal consistency of the measures were found by two formulas: (1) split-half correlations between scores on odd- and even-numbered items, adjusted with the Spearman-Brown formula; and (2) split-half correlations between odd and even scores, assumed to be independent trials, estimated with the Guttman formula:

$$r = 2\left(1 - \frac{s_o^2 + s_e^2}{s_t^2}\right)$$

where s_o = standard deviation of odd half
s_e = standard deviation of even half
s_t = standard deviation of total test

In the Spearman-Brown formula, assumptions contradictory to the nature of the data must be made, namely, it is assumed that the two halves' means, variances, skewness of distributions, and item content are equivalent. The Guttman formula was calculated to provide reliability estimates that would not be under-estimated because of failure to satisfy the assumptions of the Spearman-Brown formula, and to make possible comparisons with results of previous studies.

Tables 17, 18, and 19 present the reliability coefficients calculated with the Guttman formula. The Spearman-Brown and Guttman formulas provided almost identical results, thus we report only results with the Guttman formula. It can be seen that there is sufficient internal consistency in the teachers' responses to the attitude inventories. The coefficients of .89 (T_0) and .92 (T_0') obtained for all teachers' responses to the total MTAI with the Spearman-Brown formula compare favorably with the coefficient of .91 reported by Leeds (1950) and .93 by Cook, Leeds, and Callis (1951), who used this same procedure. The coefficients of .88 and .91 obtained for the teachers' responses to the MTAI with the Guttman formula are almost exactly the same as the coefficient of .898 reported by Della Piana (1953), who used the same procedure.

No comparisons with other studies' results can be made at this time for the split-half coefficients found for responses to the MTAI factors. However, for purposes of this study, the split-half reliabilities obtained for the MTAI factors are very satisfactory. Since the split-half _r_s for MTAI factors were lower than those for total MTAI responses, there is question that the Horn and Morrison MTAI factors (1965) provide more homogeneous measures of teachers' attitudes. Their _r_s are quite satisfactory and will supply more unidimensional measures than available with the total MTAI scores above.

Some split-half _r_s were lower than expected. The coefficient of .39 for T_2' (unfavorable versus favorable opinions about teachers) for the 32 teachers with 9-41 years of experience working with middle-class pupils is the lowest obtained and indicates that these teachers' responses became less internally consistent from the pretest occasion when the split-half reliability was .61. No good explanation can be found for such a drop in split-half reliability for this more experienced group. Also, no good explanation is available for the unexpected _r_ of .48 for T_3 responses of the 49 teachers with 9-46 years of experience working with lower-class pupils.

Beginning teachers' reliability for T_2 was .57 and improved to .76 at the posttest occasion, indicating less homogeneity of response when they began teaching than after several months of teaching.

Table 17

Pre- and Posttest Means, Standard Deviations, and Split-Half Reliability Coefficients for Teachers' Measures, T_0-T_1

Group	N	T_0			T_0'			T_1			T_1'		
		$\bar{x}$	s	r	$\bar{x}$	s	r	$\bar{x}$	s	r	$\bar{x}$	s	r
Total (T)	212	34.42	32.12	.89	32.38	37.88	.91	4.39	8.22	.84	4.13	9.23	.86
Lower-Class (LC)	110	26.17	31.62	.89*	24.28	38.61	.93*	2.50	8.50	.83*	2.62	9.45	.87*
Middle-Class (MC)	102	43.32	30.22	.87	41.11	35.03	.89	6.42	7.38	.84	5.76	8.70	.85
0-1 (T)	64	37.27	30.83	.87*	33.92	38.50	.91*	6.42	7.61	.82*	6.05	8.32	.81*
2-8 (T)	67	38.84	29.69	.90	37.45	33.21	.90	4.66	7.59	.83	3.91	8.81	.85
9-46 (T)	81	28.53	34.10	.88	26.96	40.25	.92	2.56	8.75	.84	2.80	9.97	.87
0-1 (LC)	25	27.76	32.23	.90*	30.36	41.50	.96*	4.68	8.84	.83*	5.28	8.85	.88*
2-8 (LC)	36	30.94	28.77	.91	32.06	32.26	.89	3.83	8.09	.83	3.72	8.66	.84
9-46 (LC)	49	21.86	32.71	.87	15.47	39.54	.92	.41	8.13	.82	.45	9.80	.87
0-1 (MC)	39	43.36	28.26	.84	36.21	36.26	.88	7.54	6.47	.80	6.54	7.93	.76
2-8 (MC)	31	48.00	28.06	.87	43.71	33.19	.91	5.61	6.83	.85	4.13	8.98	.91
9-41 (MC)	32	38.75	33.65	.90	44.56	34.57	.91	5.84	8.65	.85	6.41	9.12	.86

*Denotes rs computed with Ns indicated plus scores of 1 teacher subsequently dropped from study due to incomplete pupil data.

Table 18

Pre- and Posttest Means, Standard Deviations, and Split-Half Reliability Coefficients for Teachers' Measures, T_2-T_3

		T_2			T_2'			T_3			T_3'		
Group	N	$\bar{x}$	s	r	$\bar{x}$	s	r	$\bar{x}$	s	r	$\bar{x}$	s	r
Total (T)	212	10.23	5.96	.71	9.75	6.54	.75	6.67	6.92	.71	6.51	7.63	.76
Lower-Class (LC)	110	8.92	6.36	.73*	7.98	7.15	.77*	5.23	6.27	.60*	4.89	7.70	.76*
Middle-Class (MC)	102	11.64	5.15	.65	11.67	5.18	.66	8.24	7.25	.78	8.25	7.14	.73
0-1 (T)	64	11.61	4.95	.57*	10.41	6.69	.76*	5.38	7.43	.77*	5.06	7.89	.76*
2-8 (T)	67	11.12	6.24	.82	10.60	5.93	.74	7.55	6.13	.71	7.70	6.50	.77
9-46 (T)	81	8.40	6.00	.67	8.54	6.73	.75	6.98	6.98	.67	6.67	8.07	.75
0-1 (LC)	25	11.08	5.46	.65*	9.04	7.64	.77*	3.68	6.00	.74*	3.08	7.86	.82*
2-8 (LC)	36	9.97	6.50	.82	9.42	6.13	.77	5.86	6.42	.67	6.58	6.84	.75
9-46 (LC)	49	7.04	6.14	.68	6.39	7.26	.77	5.55	6.16	.48	4.57	7.97	.72
0-1 (MC)	39	11.95	4.57	.42	11.28	5.83	.74	6.46	8.03	.76	6.33	7.65	.69
2-8 (MC)	31	12.45	5.63	.83	11.97	5.37	.69	9.52	5.11	.68	9.00	5.83	.77
9-41 (MC)	32	10.47	5.12	.61	11.84	3.98	.39	9.16	7.56	.82	9.88	7.12	.73

*Denotes rs computed with Ns indicated plus scores of 1 teacher subsequently dropped from study due to incomplete pupil data.

Table 19

Pre- and Posttest Means, Standard Deviations, and Split-Half Reliability Coefficients for Teachers' Measure C

Group	N	C			C'		
		$\overline{x}$	s	r	$\overline{x}$	s	r
Total (T)	212	28.16	12.67	.93	29.12	12.68	.92
Lower-Class (LC)	110	26.95	13.67	.92	26.45	14.38	.91
Middle-Class (MC)	102	29.45	11.35	.94	32.00	9.76	.90
0-1 (T)	64	29.53	12.55	.94	30.05	13.59	.95
2-8 (T)	67	28.39	11.88	.90	29.85	11.28	.86
9-46 (T)	81	26.88	13.26	.94	27.78	12.91	.92
0-1 (LC)	25	26.92	15.76	.94	25.80	16.89	.96
2-8 (LC)	36	27.58	11.96	.89	28.06	11.11	.82
9-46 (LC)	49	26.51	13.69	.93	25.59	14.99	.93
0-1 (MC)	39	31.21	9.59	.91	32.77	10.07	.94
2-8 (MC)	31	29.32	11.71	.92	31.94	11.11	.91
9-41 (MC)	32	27.44	12.55	.96	31.13	7.68	.82

Since beginning teachers of lower-class pupils had a split-half $\underline{r}$ of .65 and beginning teachers of middle-class pupils had a lower $\underline{r}$ of .42 with equivalent posttest $\underline{r}$s of .77 and .74 respectively, the latter 39 teachers' pretest responses were less internally consistent then those of beginning teachers of lower-class pupils.

In general, as expected, posttest split-half reliability coefficients represent greater homogeneity of responses than found in pretest responses. No simple pattern can be found to range internal consistency for the various groups of teachers in order of greater to lesser homogeneity of responses, but the teachers with 2-8 years of experience tend to have the highest coefficients of internal consistency. Classified by years of experience and social class, responses of those teachers who have taught 2-8 years and work with middle-class pupils tend to be the most homogeneous.

The split-half reliability coefficients for the "My Class" (C & C') semantic differential rating instrument indicate very high internal consistency in the responses obtained from teachers. The "My Class" inventory appears to have provided a more homogeneous or more functionally uniform instrument for measuring teachers' attitudes toward their pupils than the MTAI at the times of testing. The internal consistency of responses to both instruments, however, provide little room for doubting the instruments' accuracy in measuring the attitudes of the teachers.

Table 20 presents the coefficients of stability or test-retest coefficients for all teachers in this study. The coefficient of stability of .87 for the total MTAI scores of teachers who have taught 9-41 years and work with middle-class pupils is the highest correlation between pre- and posttest measures. Compared with the coefficients of .71 and .81 for 64 beginning teachers and 67 teachers with 2-8 years' experience respectively, the MTAI attitudes of teachers with 9-46 years' experience can be considered more stable and less changed over time.

The same pattern of greater stability in total MTAI responses as teachers' years of experience increase can be seen in both groups of teachers classified by pupils' social class. However, no such clear pattern can be seen for the coefficients of stability found for the teachers' responses to the three MTAI factors (T_1, T_2, & T_3). The $\underline{r}_{T_2T_2'}$ of .34 for the 32 teachers with 9-41 years of experience working with middle-class pupils represents the lowest stability coefficient found for teachers' measures. This MTAI factor variable for the same experienced group of teachers was also the lowest in internal consistency discussed above. Such results in reliability estimates of internal cnnsistency and stability may indicate unexpected change and uncertainty in unfavorable versus favorable opinions about children (T_2). Complete rechecking of all teacher and pupil scores several times rules out the possibility of error in scoring. The increase from pretest T_2 mean of 10.47 to the T_2' mean of 11.84 indicates a positive shift; and the lower posttest standard deviation of 3.98 compared to the pretest standard deviation of 5.12

Table 20

Coefficients of Stability for Teachers' and Pupils' Measures

	Total LC&MC N=212	Total LC N=110	Total MC N=102	0-1 LC&MC N=64	2-8 LC&MC N=67	9-46 LC&MC N=81	0-1 LC N=25	2-8 LC N=36	9-46 LC N=49	0-1 MC N=39	2-8 MC N=31	9-41 MC N=32
$r_{T_0T_0'}$	.79	.76	.80	.71	.81	.84	.64	.78	.81	.78	.82	.87
$r_{T_1T_1'}$	.79	.82	.74	.71	.75	.85	.84	.77	.83	.59	.75	.86
$r_{T_2T_2'}$	.67	.65	.64	.60	.81	.60	.49	.78	.63	.71	.83	.34
$r_{T_3T_3'}$	.75	.77	.71	.71	.73	.78	.78	.79	.75	.68	.61	.79
$r_{CC'}$	.58	.57	.58	.74	.46	.52	.76	.39	.53	.69	.54	.56
$r_{P_0P_0'}$	.69	.62	.71	.72	.62	.71	.71	.60	.61	.73	.57	.78
$r_{P_1P_1'}$	.63	.62	.64	.67	.56	.64	.72	.58	.62	.69	.54	.67
$r_{P_2P_2'}$	.65	.67	.64	.64	.60	.68	.77	.64	.66	.60	.59	.73
$r_{P_3P_3'}$	.61	.58	.64	.56	.54	.69	.48	.47	.66	.60	.59	.73
$r_{P_4P_4'}$	.67	.60	.67	.69	.62	.68	.69	.58	.54	.68	.50	.76
$r_{P_5P_5'}$	.59	.55	.64	.68	.53	.55	.67	.57	.50	.72	.58	.64
$r_{P_6P_6'}$	.64	.64	.66	.77	.45	.68	.74	.50	.70	.79	.40	.70
$r_{P_7P_7'}$	.53	.39	.61	.60	.47	.48	.47	.36	.39	.65	.54	.56
$r_{P_8P_8'}$	.52	.55	.48	.50	.56	.51	.73	.60	.46	.28	.57	.60
$r_{P_9P_9'}$	.48	.56	.39	.25	.67	.54	.18	.68	.61	.27	.63	.40
$r_{P_{10}P_{10}'}$	.45	.34	.53	.53	.40	.42	.38	.33	.32	.58	.46	.51
$r_{P_{11}P_{11}'}$	.75	.63	.65	.73	.79	.74	.72	.67	.62	.55	.71	.73

indicates a narrowing of differences in responses to this attitude measure.

Stability coefficients for MTAI Factor II and for that matter, coefficients of internal consistency too, tend to be lower than those for Factors I and III. Therefore, of the teachers' measures, MTAI Factor II may be the least reliable in the sense of reliability estimates discussed above, especially for middle-class pupils' teachers with 9-41 years' experience.

The stability coefficient of .58 for all teachers' responses to the "My Class" semantic differential, compared to the stability coefficient of .79 for all teachers' responses to the MTAI, indicates much more change in that inventory over time than in their responses to the MTAI. This change can be attributed to a minimal degree, to error variance in responses to the "My Class" inventory, but the measure's high internal consistency of .93 and .92 indicates that there is substantial "true" test-retest variance. That is, the change is not necessarily "error" variance, since "real" change may be assumed to have occurred. Support for such an assumption is provided by Guilford (1965, p. 450) who wrote:

> It is clear . . . that the internal consistency and the stability of the same test need not agree very closely. There can be very low internal consistency and yet substantial or high retest reliability. It is probably not true, however, that there can be high internal consistency and at the same time low retest reliability, except after very long time intervals. High internal-consistency reliability is in itself assurance that we are dealing with a homogeneous test, at least within the broad meaning of the term . . .

Reliability of Pupils' Measures. In testing the study's hypotheses, the pupils' measures will be used in the form of class means for each teacher. The reliabilities of class means, therefore, need to be examined and evaluated. Table 20 presents retest reliabilities for pupils' measures and Tables 21-26 present the Horst coefficients for mean measures of 100 classes. The Horst reliability coefficients were computed with the following formula by Horst (1949):

$$r = 1 - \frac{\dfrac{\Sigma \dfrac{s_i^2}{n_i - 1}}{N}}{s_M^2}$$

where N = the number of persons,
n_i = the number of measures for person i,
M_i = the mean of these measures for person i,
s_i = the standard deviation of these measures for person i, and
s_M = the standard deviation of the means for the N persons.

Table 21

Pre- and Posttest Means, Standard Deviations, and Horst Coefficients for Pupils' Measures, P_0-P_1

		P_0			P_0'			P_1			P_1'		
Group	N	$\bar{x}$	s	r	$\bar{x}$	s	r	$\bar{x}$	s	r	$\bar{x}$	s	r
Total (T)	212	124.06	13.46	.89	122.81	17.18	.90	28.65	2.84	.83	27.51	4.16	.88
Lower-Class (LC)	110	120.77	11.74	.86	119.30	15.41	.88	28.45	2.84	.84	27.22	4.32	.89
Middle-Class (MC)	102	127.60	14.27	.89	126.59	18.16	.91	28.87	2.83	.83	27.84	3.96	.88
0-1 (T)	64	127.54	13.46	.89	124.35	16.94	.89	29.36	2.48	.81	27.84	4.01	.87
2-8 (T)	67	125.18	12.48	.87	124.36	15.72	.89	28.90	2.74	.83	28.01	3.69	.87
9-46 (T)	81	120.38	13.34	.89	120.30	18.20	.91	27.89	3.01	.84	26.85	4.54	.90
0-1 (LC)	25	126.20	10.03	.82	121.62	15.55	.89	29.69	1.64	.63	27.95	4.24	.90
2-8 (LC)	36	121.84	11.23	.85	119.64	14.32	.86	28.89	2.64	.82	27.63	4.03	.88
9-46 (LC)	49	117.21	11.71	.86	117.86	15.95	.88	27.49	3.12	.84	26.53	4.47	.88
0-1 (MC)	39	128.39	15.20	.91	126.10	17.55	.90	29.14	2.87	.85	27.76	3.86	.86
2-8 (MC)	31	129.05	12.74	.88	129.84	15.48	.89	28.91	2.86	.85	28.44	3.21	.85
9-41 (MC)	32	125.23	14.20	.89	124.04	20.64	.93	28.51	2.72	.81	27.33	4.61	.91

Table 22

Pre- and Posttest Means, Standard Deviations, and Horst Coefficients for Pupils' Measures, P_2-P_3

		P_2			P_2'			P_3			P_3'		
Group	N	$\bar{x}$	s	*r*	$\bar{x}$	s	*r*	$\bar{x}$	s	*r*	$\bar{x}$	s	*r*
Total (T)	212	10.12	1.21	.86	9.53	1.76	.90	4.61	.88	.86	4.26	1.00	.86
Lower-Class (LC)	110	10.07	1.28	.87	9.38	1.84	.91	4.43	.89	.84	4.15	1.01	.86
Middle-Class (MC)	102	10.18	1.13	.85	9.69	1.65	.90	4.79	.83	.86	4.38	.97	.87
0-1 (T)	64	10.40	.89	.78	9.72	1.58	.88	4.93	.67	.80	4.37	.88	.83
2-8 (T)	67	10.28	1.19	.87	9.71	1.65	.90	4.58	.89	.86	4.33	1.00	.87
9-46 (T)	81	9.78	1.35	.87	9.22	1.94	.92	4.38	.94	.87	4.12	1.07	.88
0-1 (LC)	25	10.52	.70	.67	9.68	1.70	.90	4.91	.46	.51	4.36	.87	.83
2-8 (LC)	36	10.36	1.08	.84	9.63	1.65	.89	4.43	.88	.83	4.19	.99	.85
9-46 (LC)	49	9.63	1.49	.87	9.04	1.98	.91	4.19	.97	.86	4.01	1.08	.87
0-1 (MC)	39	10.32	.98	.81	9.74	1.49	.87	4.95	.77	.86	4.37	.88	.83
2-8 (MC)	31	10.18	1.31	.90	9.81	1.63	.91	4.75	.87	.88	4.50	.99	.89
9-41 (MC)	32	10.01	1.07	.83	9.51	1.83	.92	4.65	.83	.85	4.29	1.03	.89

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Table 23

Pre- and Posttest Means, Standard Deviations, and Horst Coefficients for Pupils' Measures, P_4-P_5

Group	N	P_4			P_4'			P_5			P_5'		
		$\bar{X}$	s	r	$\bar{X}$	s	r	$\bar{X}$	s	r	$\bar{X}$	s	r
Total (T)	212	10.42	2.14	.79	10.58	2.38	.81	13.65	1.30	.77	13.26	1.71	.82
Lower-Class (LC)	110	9.66	2.02	.76	9.89	2.21	.79	13.75	1.25	.75	13.30	1.78	.83
Middle-Class (MC)	102	11.24	1.96	.76	11.33	2.33	.81	13.54	1.35	.79	13.21	1.63	.81
0-1 (T)	64	11.16	1.94	.74	10.98	2.24	.79	13.84	1.27	.80	13.37	1.70	.82
2-8 (T)	67	10.50	1.99	.76	10.77	2.23	.80	13.76	1.18	.73	13.46	1.42	.76
9-46 (T)	81	9.77	2.21	.81	10.11	2.52	.84	13.40	1.38	.76	13.00	1.89	.84
0-1 (LC)	25	10.70	1.73	.67	10.60	2.28	.81	14.11	.81	.55	13.63	1.81	.86
2-8 (LC)	36	9.71	1.90	.71	10.01	2.08	.76	13.94	1.13	.69	13.39	1.71	.82
9-46 (LC)	49	9.10	2.02	.75	9.44	2.15	.77	13.42	1.43	.77	13.07	1.78	.81
0-1 (MC)	39	11.45	2.01	.77	11.22	2.18	.78	13.67	1.47	.84	13.20	1.61	.79
2-8 (MC)	31	11.42	1.67	.69	11.66	2.05	.78	13.55	1.21	.76	13.54	.98	.57
9-41 (MC)	32	10.80	2.10	.79	11.13	2.69	.86	13.36	1.31	.74	12.90	2.04	.87

Table 24

Pre- and Posttest Means, Standard Deviations, and Horst Coefficients for Pupils' Measures, P_6-P_7

Group	N	P_6			P_6'			P_7			P_7'		
		$\bar{x}$	s	$\underline{r}$	$\bar{x}$	s	$\underline{r}$	$\bar{x}$	s	$\underline{r}$	$\bar{x}$	s	$\underline{r}$
Total (T)	212	8.21	2.95	.93	6.52	2.84	.92	4.93	.63	.81	4.59	.75	.81
Lower-Class (LC)	110	7.88	2.94	.93	6.64	2.82	.91	4.96	.48	.66	4.57	.64	.73
Middle-Class (MC)	102	8.57	2.92	.94	6.39	2.85	.93	4.90	.77	.87	4.61	.85	.86
0-1 (T)	64	8.34	3.19	.94	6.33	3.03	.93	4.84	.78	.87	4.46	.84	.85
2-8 (T)	67	8.67	2.71	.91	6.84	2.91	.92	5.00	.53	.74	4.66	.64	.74
9-46 (T)	81	7.74	2.87	.93	6.41	2.58	.90	4.94	.57	.77	4.64	.75	.82
0-1 (LC)	25	8.40	3.08	.93	6.65	3.10	.93	4.98	.49	.69	4.45	.65	.74
2-8 (LC)	36	8.27	2.71	.90	6.79	2.92	.92	4.95	.42	.53	4.51	.58	.64
9-46 (LC)	49	7.33	2.93	.93	6.52	2.58	.89	4.95	.50	.69	4.68	.65	.75
0-1 (MC)	39	8.29	3.26	.95	6.11	2.97	.93	4.75	.91	.90	4.47	.94	.88
2-8 (MC)	31	9.13	2.63	.92	6.91	2.90	.93	5.07	.62	.83	4.83	.65	.79
9-41 (MC)	32	8.36	2.66	.93	6.23	2.56	.91	4.91	.66	.83	4.58	.87	.87

Table 25

Pre- and Posttest Means, Standard Deviations, and Horst Coefficients for Pupils' Measures, P_8-P_9

		P_8			P_8'			P_9			P_9'		
Group	N	$\overline{x}$	s	r	$\overline{x}$	s	r	$\overline{x}$	s	r	$\overline{x}$	s	r
Total (T)	212	3.12	1.17	.93	3.86	1.34	.95	1.92	.83	.87	2.29	1.05	.92
Lower-Class (LC)	110	3.09	1.24	.93	3.63	1.38	.95	1.83	.82	.85	2.00	.92	.89
Middle-Class (MC)	102	3.16	1.09	.94	4.12	1.24	.95	2.02	.83	.88	2.59	1.09	.93
0-1 (T)	64	3.06	1.11	.92	4.04	1.30	.96	1.86	.80	.85	2.51	1.13	.93
2-8 (T)	67	3.28	1.14	.93	3.86	1.26	.95	2.04	.90	.89	2.28	.98	.91
9-46 (T)	81	3.04	1.22	.94	3.73	1.42	.96	1.87	.79	.86	2.12	.99	.91
0-1 (LC)	25	2.87	1.14	.91	3.60	1.46	.97	1.79	.68	.76	1.99	.74	.81
2-8 (LC)	36	3.28	1.28	.94	3.50	1.38	.95	1.88	.86	.86	1.97	.85	.87
9-46 (LC)	49	3.06	1.23	.92	3.73	1.34	.95	1.82	.86	.87	2.04	1.03	.90
0-1 (MC)	39	3.17	1.07	.93	4.32	1.11	.94	1.90	.86	.89	2.84	1.21	.94
2-8 (MC)	31	3.28	.96	.92	4.27	.94	.92	2.23	.90	.91	2.65	.99	.92
9-41 (MC)	32	3.01	1.21	.95	3.73	1.53	.97	1.95	.66	.82	2.25	.92	.91

Table 26

Pre- and Posttest Means, Standard Deviations, and Horst Coefficients for Pupils' Measures, P_{10}-P_{11}

		P_{10}			P_{10}'			P_{11}			P_{11}'		
Group	N	$\bar{x}$	s	r	$\bar{x}$	s	r	$\bar{x}$	s	r	$\bar{x}$	s	r
Total (T)	212	6.36	1.04	.69	6.88	1.12	.67	3.35	.92	.85	3.65	.94	.85
Lower-Class (LC)	110	6.33	.93	.60	6.83	1.05	.64	2.83	.81	.78	3.15	.83	.78
Middle-Class (MC)	102	6.39	1.15	.76	6.93	1.20	.71	3.90	.68	.77	4.18	.75	.80
0-1 (T)	64	6.16	1.05	.70	6.75	1.15	.69	3.53	.88	.83	3.80	.82	.81
2-8 (T)	67	6.43	1.00	.67	6.84	1.08	.66	3.30	1.01	.88	3.69	.93	.85
9-46 (T)	81	6.46	1.05	.71	7.01	1.12	.68	3.24	.85	.83	3.48	1.02	.87
0-1 (LC)	25	6.11	.69	.30	6.69	1.00	.62	2.90	.81	.76	3.26	.63	.62
2-8 (LC)	36	6.32	1.06	.69	6.70	1.06	.65	2.77	.93	.83	3.16	.77	.74
9-46 (LC)	49	6.44	.93	.60	6.99	1.04	.61	2.84	.71	.72	3.09	.95	.83
0-1 (MC)	39	6.20	1.23	.79	6.78	1.24	.72	3.94	.65	.74	4.15	.73	.79
2-8 (MC)	31	6.55	.92	.63	7.01	1.08	.64	3.92	.71	.80	4.32	.67	.76
2-41 (MC)	32	6.48	1.22	.80	7.04	1.23	.75	3.84	.68	.78	4.09	.82	.84

The Horst coefficients indicate the extent to which the mean measures of pupil attitudes differentiate among the classes, and the coefficient of stability estimate how stable the pupil means were from pretest to posttest. Variation in coefficients of both types should be expected in view of the variety of attitudes measured and the differences in scale length, which varied from 100 items to 3 items.

The highest coefficient of stability, .78 is for $\underline{r}_{P_0P_0'}$, the retest correlation of responses to the total "About My Teacher" inventory of 100 items for 32 teachers who had 9-41 years of experience and taught middle-class pupils. The Horst coefficients of .89 and .93 for responses to this scale show consistent within-class agreement. For groups with Ns > 50, the lowest stability coefficient found for pupils' measures of .25 is for the three-item factor, P_9, pupils' attitude toward teachers' behavior in individualizing instruction for the 64 classes of beginning teachers. The Horst coefficients of .85 and .93 for responses to this pupil factor scale indicate strong inter-class agreement at both pre- and posttest occasion. With both estimates of reliability at hand, it may be psssible that pupils perceived the younger teachers changing most in individualizing instruction. The stability $\underline{r}$ of .25 is significantly different from .67 for the 67 teachers of 2-8 years' experience and .54 for the 81 teachers of 9-46 years' experience (Fisher's $\underline{z}_r$ transformation). No other pupil variable provides such outstanding differences between beginning teachers' and experienced teachers' stability $\underline{r}$s.

In comparing the retest $\underline{r}_{P_9P_9'}$ of .18 found for beginning teachers of lower-class pupils to the retest $\underline{r}$ of .27 for teachers of middle-class pupils, the greatest change, though both $\underline{r}$s suggest considerable test-retest shifting, was in the former group. The means (Table 25), however, indicate that beginning teachers of middle-class pupils received more positive pupil ratings with this factor than lower-class pupils' beginning teachers. The greater change in P_9 perceptions for lower-class pupils may be due to change in both directions, while change in P_9 perceptions of middle-class pupils was more generally in a shift towards higher ratings. Another factor that should be considered with such low $\underline{r}$s is the possiblity of random fluctuation due to the small Ns.

All Horst coefficients are greater than the stability coefficients for pupils' measurements, indicating more variability between occasions than within classes. This result is advantageous for the use of class means as indices of pupils' attitudes in relationship to teachers' attitude measures.

For the total scores from the "About My Teacher" inventory (100 items), the pretest and posttest Horst coefficients were .89 and .90 respectively, and the coefficient of stability, $\underline{r}_{P_0P_0'}$, was .69. These results indicate that there is strong within-class agreement and considerable change between class means after an interval of time. In general, the stability of teachers' measures is greater than pupils', i.e., $\underline{r}_{T_0T_0'} = .79$ for all teachers, $\underline{r}_{P_0P_0'} = .69$ for all classes.

The reliability of pupils' mean measures and teachers' measures are deemed satisfactory for use in investigating relationship between variables in this research study.

Rectilinearity of Measures

Rectilinearity in the relationship of teacher and pupil measures was examined by inspection of at least 60 scatter plots prepared by hand and computer. Paired scores tended to fall along a straight line, and no curvilinear relationship was observed in any scatter plot. Hence, the product-moment coefficient of correlation (r) was deemed justified. As an example, one machine-drawn plot is provided in Figure 2.

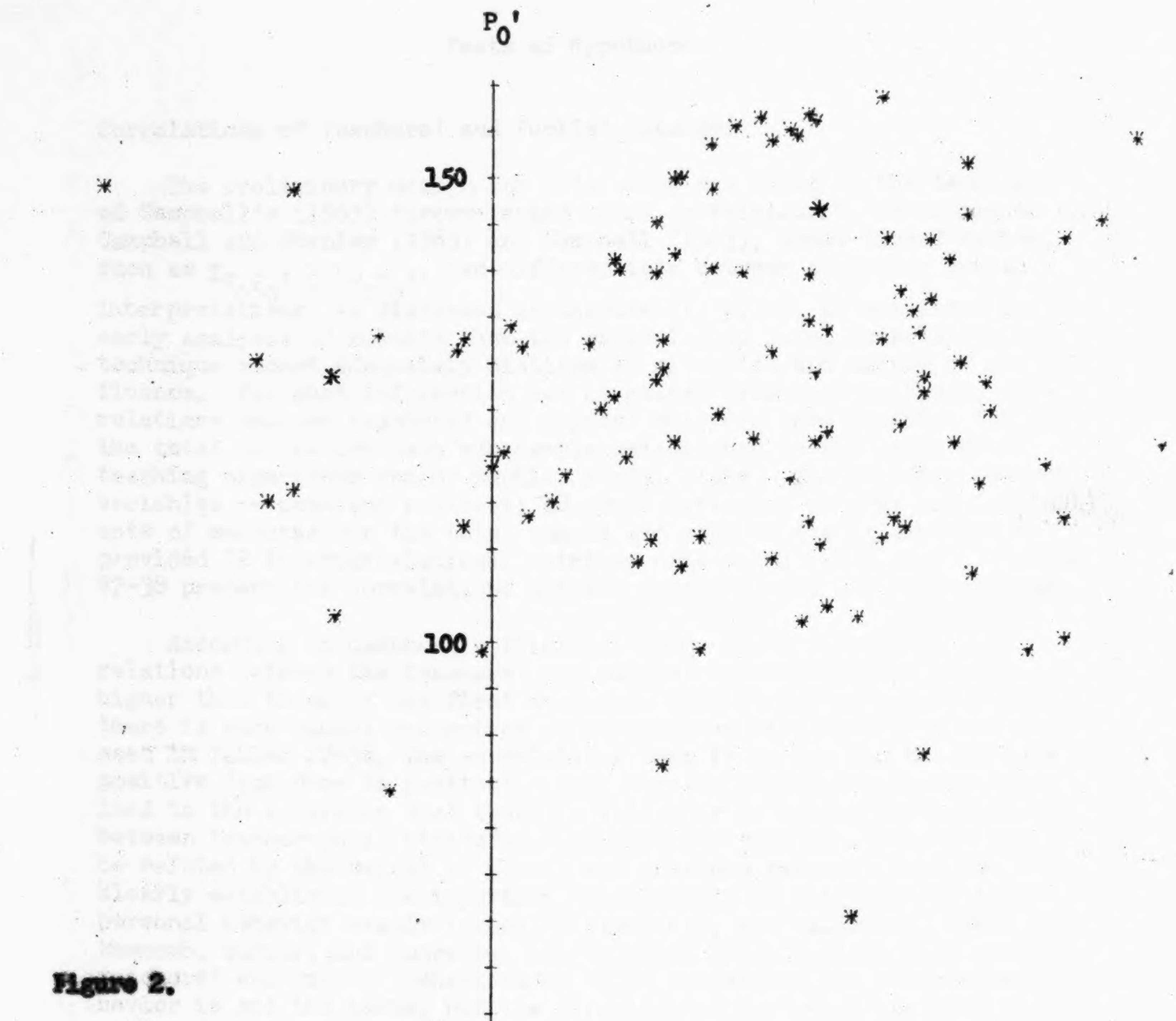

Figure 2.

$r_{T_0'P_0'} = .05$

for middle-class pupils and

their teachers, N = 102

Tests of Hypotheses

Correlations of Teachers' and Pupils' Measures

The preliminary design for this study was based on the technique of Campbell's (1963) "cross-lagged panel correlation." According to Campbell and Stanley (1963) and Campbell (1963), cross-lagged series, such as $\underline{r}_{T_0 P_0'} \geq \underline{r}_{P_0 T_0'}$, can differentiate between competing causal interpretations. As discussed in Chapter II, p. 41, it was found in early analyses of results that the cross-lagged panel correlation technique cannot adequately distinguish direction and degree of influence. For what information can be gained from such analyses, correlations between teachers' and pupils' measures were computed for the total sample and each sub-sample established on the basis of teaching experience and/or pupils' social class. The 34 (five teacher variables -- pre- and posttest; 12 pupil variables -- pre- and posttest) sets of measures for the total sample and each of the 11 sub-samples provided 12 intercorrelational matrices made up of 1,156 cells. Tables 27-38 present the correlations between teachers' and pupils' measures.

According to Campbell's thinking (1963, pp. 239-240), if correlations between the teachers' and pupils' second measures are higher than those of the first measures, then it may be inferred that there is some causal connection of unspecified direction. As can be seen in Tables 27-38, the correlations tend to be low and become less positive from pre- to posttest. Such results under such theory could lead to the inference that there is little or no causal connection between teacher-pupil attitudes. Support for such an inference can be refuted by the weight of theory and previous research that has clearly established the important relationship of attitudes in interpersonal behavior events (Krech, Crutchfield, and Ballachey, 1962; Newcomb, Turner, and Converse, 1965). More specifically, that teachers' and pupils' behaviors do or do not affect the other's behavior is not the issue, but the direction of influence has been an open question. Conclusions from the review of pertinent literature dealing with teacher-pupil attitudes in Chapter I would dispute the inference. As Biddle (1964, pp. 12-13) wrote:

> Just as teacher behaviors are a part of the classroom situation for the pupil, pupil behaviors form part of the classroom situation for the teacher. In fact, pupil behaviors must be considered a major component of the classroom situation; and teachers, inadvertently, may cause unwanted situations to arise through mistimed or accidental acts. In this sense, classroom interaction is a total system of interrelated parts; and each act in the system (whether by pupil or teacher) may be seen to have determinants and results in other acts of the system.

Granted that teachers' and pupils' attitudes comprise significant factors in classroom interaction where one is cause and then effect in relationship to the other's reactions and actions in the many school

Table 27

Correlations between Teacher and Pupil Measures
(Total Sample, N = 212)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.19	.19	.15	.10	.18	.20	.20	.19	.09	.12
P_1	.08	.08	.07	.01	.06	.10	.11	.09	-.01	-.04
P_2	.10	.12	.08	.02	.07	.13	.13	.10	.00	-.05
P_3	.15	.16	.12	.07	.12	.11	.15	.14	.00	.03
P_4	.15	.17	.17	.10	.06	.13	.15	.14	.07	.04
P_5	-.03	.00	.00	-.09	.02	-.01	.01	-.01	-.09	-.06
P_6	.12	.13	.09	.10	.24	.13	.12	.11	.09	.18
P_7	-.01	.00	-.02	-.03	.11	.02	.03	.02	.03	.04
P_8	.17	.09	.02	.16	-.06	.14	.10	.10	.13	.10
P_9	.23	.18	.14	.15	.05	.20	.17	.12	.20	.00
P_{10}	-.03	-.02	-.10	.03	.07	.05	.05	.02	.04	.10
P_{11}	.25	.19	.21	.21	.27	.20	.17	.23	.18	.27
P_0'	.10	.10	.08	.06	.12	.17	.17	.19	.06	.17
P_1'	.05	.03	.08	-.03	.01	.10	.11	.13	-.04	.07
P_2'	.08	.08	.08	-.01	.03	.14	.15	.16	-.01	.11
P_3'	.09	.12	.06	-.01	.08	.10	.16	.13	-.01	.11
P_4'	.09	.09	.13	.06	.09	.14	.13	.20	.06	.16
P_5'	.01	.00	.05	-.04	-.03	.05	.06	.09	-.07	.03
P_6'	-.03	.11	-.09	.00	.13	.04	.11	.02	.00	.14
P_7'	-.01	.00	-.02	-.04	.04	.04	.04	.10	-.01	.12
P_8'	.14	.13	-.01	.23	-.04	.18	.17	.12	.13	.05
P_9'	.27	.23	.16	.26	.09	.25	.19	.15	.32	.07
P_{10}'	-.03	-.14	-.02	.00	.06	.05	-.06	.03	.01	.08
P_{11}'	.15	.13	.15	.13	.18	.19	.14	.23	.13	.26

Table 28

Correlations between Teacher and Pupil Measures
(Sub-sample with all lower class pupils and their teachers, N = 110)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.23	.29	.17	.06	.08	.25	.27	.22	.05	.07
P_1	.18	.20	.12	.02	-.02	.20	.20	.17	-.01	-.06
P_2	.17	.23	.11	.02	.00	.20	.22	.15	.01	-.08
P_3	.23	.27	.15	.13	.02	.19	.25	.19	.03	-.02
P_4	.07	.15	.16	-.07	-.03	.08	.12	.09	-.07	-.06
P_5	.13	.14	.12	-.03	-.04	.10	.09	.10	-.08	-.06
P_6	.18	.24	.12	.15	.15	.19	.19	.18	.14	.12
P_7	.11	.16	.00	.10	.05	.11	.16	.12	.15	-.01
P_8	.13	.10	-.07	.16	-.16	.10	.12	.05	.10	.12
P_9	.18	.11	.03	.12	.05	.21	.20	.08	.21	.02
P_{10}	-.13	-.07	-.25	-.06	-.02	-.09	-.03	-.17	-.06	.04
P_{11}	.07	.02	.12	.04	.23	.03	.05	.10	.00	.20
P_0'	.08	.14	.03	-.04	.02	.21	.21	.18	.01	.07
P_1'	.13	.11	.15	-.08	-.04	.21	.20	.22	-.03	.03
P_2'	.15	.15	.15	-.05	-.02	.24	.24	.24	.00	.06
P_3'	.12	.21	.08	-.06	.01	.19	.25	.18	.01	.04
P_4'	.07	.09	.12	-.03	.00	.16	.16	.17	-.01	.03
P_5'	.11	.10	.14	-.07	-.09	.19	.15	.20	-.05	.00
P_6'	-.04	.18	-.15	.04	.03	.06	.14	.03	.03	.04
P_7'	.00	.02	-.08	-.04	.04	.07	.04	.12	.00	.07
P_8'	-.07	.02	-.20	.06	-.13	.05	.10	-.02	.04	.01
P_9'	.15	.11	.01	.23	.13	.25	.20	.07	.33	.03
P_{10}'	-.12	-.18	-.12	-.11	-.02	-.09	-.14	-.15	-.10	-.01
P_{11}'	.04	.03	.08	-.05	.13	.12	.07	.12	.01	.14

Table 29

Correlations between Teacher and Pupil Measures
(Sub-sample with all middle class pupils and their teachers, N = 102)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.04	.00	.04	.05	.25	.06	.06	.03	.04	.07
P_1	-.06	-.10	-.04	-.04	.15	-.04	-.03	-.07	-.05	-.04
P_2	-.01	-.06	.01	-.01	.17	.01	.01	-.02	-.04	-.02
P_3	-.05	-.08	-.02	-.07	.20	-.09	-.03	-.08	-.14	-.01
P_4	.04	.02	.00	.11	.11	.02	.06	-.02	.05	-.01
P_5	-.14	-.12	-.10	-.10	.11	-.09	-.05	-.10	-.06	-.02
P_6	-.01	-.07	-.01	.01	.33	.00	.00	-.07	-.03	.23
P_7	-.07	-.11	-.02	-.09	.19	-.02	-.05	-.03	-.03	.13
P_8	.22	.07	.15	.15	.07	.18	.07	.18	.17	.04
P_9	.24	.21	.24	.14	.03	.16	.10	.13	.13	-.09
P_{10}	.04	.01	.04	.08	.16	.17	.12	.23	.13	.19
P_{11}	.17	.13	.05	.19	.30	.16	.13	.08	.15	.14
P_0'	.02	-.04	.03	.06	.18	.05	.06	.09	.02	.22
P_1'	-.09	-.12	-.07	-.01	.07	-.08	-.03	-.06	-.08	.11
P_2'	-.06	-.09	-.05	-.01	.09	-.03	.01	-.02	-.06	.15
P_3'	-.02	-.05	-.02	-.02	.14	-.06	.01	-.03	-.09	.17
P_4'	-.05	-.07	.00	.01	.15	-.02	.01	.07	.00	.21
P_5'	-.09	-.12	-.08	.00	.05	-.11	-.05	-.05	-.09	.09
P_6'	.01	.05	.02	-.02	.28	.05	.10	.04	-.03	.33
P_7'	-.03	-.04	.01	-.05	.03	.00	.04	.07	-.03	.19
P_8'	.31	.19	.18	.35	.05	.27	.20	.23	.17	.01
P_9'	.28	.25	.22	.21	-.01	.16	.10	.09	.22	-.03
P_{10}'	.03	-.13	.07	.08	.14	.17	.01	.23	.11	.19
P_{11}'	-.03	-.03	-.04	.07	.19	.03	.03	.06	.01	.22

Table 30

Correlations between Teacher and Pupil Measures
(Sub-sample with all teachers with 0-1 years'
experience and their pupils, N = 64)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	-.03	.08	-.14	-.01	.22	.06	.03	.04	.04	.15
P_1	-.16	-.07	-.13	-.15	.09	-.02	-.08	-.04	-.06	.00
P_2	-.12	.02	-.08	-.14	.11	.05	-.02	.01	-.02	.00
P_3	-.11	.03	-.20	-.10	.10	-.07	.01	-.06	-.10	.02
P_4	-.07	.07	-.10	-.04	.09	-.03	.03	-.02	-.03	-.01
P_5	-.25	-.14	-.15	-.24	.12	-.11	-.15	-.11	-.14	.03
P_6	-.12	.03	-.26	-.04	-.33	.01	.04	-.02	-.05	.28
P_7	-.15	-.12	-.14	-.20	.15	-.05	-.10	-.06	-.06	.16
P_8	.23	.16	.14	.06	.05	.15	.12	.19	.07	.06
P_9	.11	.09	.19	-.04	-.04	.00	.01	.05	.00	-.11
P_{10}	.08	.01	-.10	.15	.16	.10	.05	.00	.19	.14
P_{11}	.17	.16	.00	.21	.27	.00	.01	.07	.10	.31
P_0'	.02	.07	.02	.01	.24	.18	.10	.22	.11	.22
P_1'	-.08	-.01	.02	-.14	.13	.04	.04	.08	-.07	.05
P_2'	-.05	.00	.05	-.10	.15	.10	.06	.15	-.03	.08
P_3'	-.05	.06	-.04	-.09	.08	-.06	.00	.04	-.12	.08
P_4'	-.03	.06	.05	-.06	.14	.04	.07	.07	.05	.11
P_5'	-.12	.00	-.02	-.19	.13	-.01	.02	-.01	-.14	.02
P_6'	-.10	.04	-.12	-.03	.27	.10	.09	.10	.02	.27
P_7'	-.01	.06	-.02	-.10	.15	.10	.06	.17	.08	.28
P_8'	.22	.13	.19	.18	.13	.21	.08	.25	.09	.05
P_9'	.24	.13	.17	.25	.14	.17	.06	.15	.30	.13
P_{10}'	.02	-.09	-.04	.03	.07	.27	.05	.22	.24	.09
P_{11}'	.07	.08	-.02	.13	.17	.01	-.02	.11	.00	.23

Table 31

Correlations between Teacher and Pupil Measures (Sub-sample with all teachers with 2-8 years' experience and their pupils, N = 67)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.40	.26	.30	.11	.53	.34	.31	.34	.09	.30
P_1	.29	.12	.17	.09	.41	.27	.28	.23	.09	.13
P_2	.30	.17	.15	.14	.39	.33	.35	.22	.16	.08
P_3	.28	.18	.17	.07	.47	.19	.23	.22	-.03	.22
P_4	.30	.16	.28	.11	.34	.22	.14	.26	.05	.20
P_5	.18	.08	.13	-.08	.31	.15	.20	.16	-.02	.15
P_6	.30	.17	.34	.13	.36	.27	.15	.27	.07	.28
P_7	.25	.17	.20	.03	.46	.23	.30	.25	.01	.27
P_8	.01	.02	-.19	.14	-.23	-.01	-.02	-.01	.15	.01
P_9	.22	.19	.11	.18	.11	.19	.18	.10	.20	.01
P_{10}	-.10	.04	-.17	-.08	.14	.00	.12	-.03	-.07	.09
P_{11}	.25	.11	.20	.15	.43	.22	.12	.22	.11	.36
P_0'	.20	.23	.16	-.12	.42	.20	.28	.19	.01	.37
P_1'	.19	.22	.19	-.17	.34	.18	.33	.18	.00	.33
P_2'	.20	.25	.16	-.13	.34	.23	.39	.17	.04	.34
P_3'	.17	.31	.12	-.22	.45	.19	.40	.13	-.02	.35
P_4'	.18	.13	.22	-.07	.42	.21	.18	.28	.06	.38
P_5'	.15	.18	.19	-.15	.26	.13	.25	.20	-.02	.28
P_6'	-.01	.24	-.02	-.19	.21	.05	.16	.00	-.13	.25
P_7'	.07	.14	.05	-.19	.30	.03	.15	.04	-.13	.32
P_8'	.08	.14	-.19	.31	-.08	.06	.12	-.04	.19	.06
P_9'	.29	.09	.16	.32	.00	.26	.04	.19	.37	-.01
P_{10}'	-.12	-.16	-.01	-.11	-.02	.03	-.03	.01	-.08	.03
P_{11}'	.23	.06	.24	.06	.30	.20	.11	.25	.10	.33

Table 32

Correlations between Teacher and Pupil Measures (Sub-sample with all teachers with 9-46 years' experience and their pupils, N = 81)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.15	.15	.11	.25	-.14	.18	.17	.15	.18	-.07
P_1	.03	.05	-.03	.10	-.23	.03	.03	.02	-.01	.22
P_2	.02	.05	-.03	.06	-.19	.01	.01	.00	-.06	-.21
P_3	.15	.12	.12	.25	-.16	.13	.10	.15	.14	-.13
P_4	.13	.13	.11	.27	-.19	.14	.15	.12	.20	-.06
P_5	-.05	-.03	-.09	.05	-.26	-.07	-.06	-.09	-.08	-.29
P_6	.14	.13	.07	.21	.06	.10	.14	.06	.21	-.01
P_7	-.04	.02	-.07	.10	-.14	-.04	.00	-.04	.10	-.24
P_8	.22	.10	.09	.23	-.03	.21	.19	.10	.15	.17
P_9	.30	.24	.14	.27	.07	.36	.28	.18	.33	.07
P_{10}	-.04	-.03	.00	-.03	-.02	.05	.04	.10	-.03	.11
P_{11}	.28	.23	.30	.33	.11	.32	.27	.37	.35	.15
P_0'	.06	.00	-.01	.22	-.18	.12	.11	.13	.06	-.02
P_1'	.01	-.10	-.03	.14	-.29	.06	.00	.10	-.03	-.09
P_2'	.04	-.05	-.02	.14	-.25	.08	.03	.11	-.02	-.05
P_3'	.07	-.01	.01	.20	-.21	.13	.06	.15	.07	-.05
P_4'	.05	.01	.02	.25	-.18	.13	.10	.20	.09	.03
P_5'	-.02	-.14	-.07	.14	-.32	.03	-.05	.06	-.06	-.13
P_6'	.00	.06	-.15	.16	-.05	-.03	.11	-.05	.04	-.09
P_7'	-.04	-.09	-.04	.08	-.21	.00	.01	.09	-.05	-.14
P_8'	.11	.09	-.03	.24	-.14	.21	.23	.11	.16	.03
P_9'	.27	.36	.09	.28	.08	.30	.36	.08	.35	.04
P_{10}'	.01	-.12	.04	.04	.12	-.09	-.13	-.07	-.12	.12
P_{11}'	.11	.16	.10	.20	.09	.26	.20	.27	.25	.22

Table 33

Correlations between Teacher and Pupil Measures
(Sub-sample with teachers with 0-1 years' experience
and their lower-class pupils, N = 25)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.20	.36	.04	.18	.23	.45	.35	.40	.19	.22
P_1	.14	.22	.16	-.04	.01	.46	.29	.38	.14	.08
P_2	.15	.38	.10	.02	.07	.46	.36	.34	.21	.02
P_3	.24	.40	.01	.17	.12	.39	.49	.33	.10	.20
P_4	.01	.19	.13	-.11	.05	.26	.34	.22	-.07	-.01
P_5	.05	.10	.23	-.15	.11	.29	.15	.29	.00	.22
P_6	.00	.29	-.12	.13	.34	.26	.22	.32	.10	.31
P_7	.08	.03	-.08	.06	.10	.18	.03	.22	.14	.35
P_8	.30	.32	.08	.09	-.06	.15	.26	.09	.00	-.09
P_9	.28	.12	.26	.06	-.04	.08	.12	.04	.06	-.10
P_{10}	-.08	-.12	-.35	.22	-.02	-.15	-.28	-.33	.20	-.15
P_{11}	.02	-.12	.11	.12	.15	-.11	-.14	.07	-.14	.26
P_0'	.01	.20	.04	.05	.27	.36	.18	.36	.14	.13
P_1'	.02	.16	.19	-.13	.11	.28	.20	.28	-.02	.00
P_2'	.02	.17	.18	-.06	.11	.31	.22	.32	.04	.00
P_3'	.10	.31	.10	-.02	.23	.17	.19	.22	-.08	.16
P_4'	-.02	.13	.20	-.06	.21	.17	.14	.17	.01	.05
P_5'	.06	.22	.19	-.14	.10	.26	.25	.20	-.04	-.04
P_6'	-.11	.25	-.12	.17	.33	.21	.18	.19	.18	.19
P_7'	.14	.32	-.01	.25	.25	.32	.13	.29	.30	.22
P_8'	-.09	.01	-.11	-.20	.04	-.02	.00	.01	-.18	-.10
P_9'	-.04	-.10	-.26	.19	.20	.11	-.02	-.03	.30	-.01
P_{10}'	-.09	-.28	-.22	-.03	-.06	.21	-.21	.15	.24	-.11
P_{11}'	-.15	-.16	-.10	.07	-.05	.02	-.18	.15	-.11	.02

Table 34

Correlations between Teacher and Pupil Measures
(Sub-sample with teachers with 2-8 years' experience
and their lower-class pupils, N = 36)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.51	.43	.34	.00	.55	.35	.35	.44	-.02	.37
P_1	.47	.30	.27	.05	.50	.40	.39	.47	.14	.28
P_2	.52	.39	.27	.14	.49	.53	.54	.49	.31	.20
P_3	.39	.31	.20	.03	.50	.21	.28	.31	-.07	.22
P_4	.30	.23	.30	-.05	.32	.12	.07	.26	-.12	.14
P_5	.37	.25	.28	-.12	.30	.22	.24	.40	-.05	.29
P_6	.34	.34	.35	.12	.14	.21	.12	.21	.03	.13
P_7	.35	.38	.21	-.05	.42	.31	.45	.36	.02	.20
P_8	-.02	-.09	-.23	.17	-.26	-.04	-.12	.08	.07	.18
P_9	.16	.10	-.06	.14	.16	.21	.23	.07	.24	.10
P_{10}	-.20	.05	-.40	-.15	.09	-.15	.08	-.26	-.23	.09
P_{11}	.16	.15	.14	-.01	.56	.18	.22	.16	-.05	.48
P_0'	.25	.41	.10	-.23	.45	.27	.46	.28	-.03	.36
P_1'	.38	.40	.30	-.19	.42	.36	.48	.41	.08	.37
P_2'	.42	.45	.28	-.14	.42	.45	.57	.43	.15	.41
P_3'	.24	.44	.14	-.33	.50	.22	.51	.24	-.04	.26
P_4'	.26	.26	.19	-.14	.41	.28	.33	.31	.04	.26
P_5'	.30	.34	.27	-.15	.27	.26	.36	.36	.03	.33
P_6'	-.12	.29	-.19	-.20	-.03	-.03	.16	-.07	-.17	.11
P_7'	.00	.18	-.06	-.33	.41	-.01	.17	.07	-.25	.33
P_8'	-.09	.02	-.34	.22	-.17	-.04	.05	-.09	.13	.12
P_9'	.28	.02	.15	.29	.19	.40	.19	.29	.41	.17
P_{10}'	-.35	-.13	-.27	-.29	-.11	-.15	-.03	-.18	-.27	.00
P_{11}'	.19	.02	.22	-.14	.41	.10	.09	.20	-.14	.29

Table 35

Correlations between Teacher and Pupil Measures
(Sub-sample with teachers with 9-46 years' experience
and their lower-class pupils, N = 49)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.04	.06	-.07	.13	-.28	.02	.09	-.07	.06	-.17
P_1	-.01	.03	-.15	.08	-.32	-.05	-.03	-.12	-.12	-.30
P_2	-.03	.01	-.12	.00	-.27	-.09	-.05	-.13	-.18	-.26
P_3	.13	.13	.01	.29	-.28	.09	.10	.05	.13	-.20
P_4	-.08	-.05	-.08	.01	-.30	-.11	-.05	-.16	.00	-.21
P_5	-.02	.01	-.12	.09	-.29	-.10	-.08	-.18	-.13	-.33
P_6	.14	.08	-.02	.20	.02	.08	.16	.02	.23	-.02
P_7	.00	.10	-.11	.24	-.18	-.02	.06	-.05	.23	-.31
P_8	.14	.14	-.01	.16	-.16	.16	.24	.00	.13	.19
P_9	.14	.12	.02	.13	.02	.27	.22	.09	.26	.02
P_{10}	-.07	-.09	-.04	-.12	-.10	.02	.02	-.01	-.06	.09
P_{11}	.05	-.02	.11	.06	.03	.02	.01	.10	.15	-.02
P_0'	.00	-.11	-.08	.07	-.37	.07	.05	.01	-.02	-.10
P_1'	.00	-.16	-.04	.03	-.40	.05	-.02	.04	-.11	-.14
P_2'	.02	-.10	-.03	.03	-.33	.05	.03	.05	-.11	-.09
P_3'	.04	-.04	-.05	.15	-.40	.14	.08	.09	.08	-.14
P_4'	-.05	-.15	-.08	.11	-.40	.03	-.01	.03	-.04	-.11
P_5'	-.01	-.20	-.03	.05	-.42	.07	-.07	.07	-.10	-.16
P_6'	.05	.03	-.18	.18	-.15	.00	.10	-.03	.09	-.11
P_7'	-.03	-.16	-.03	-.01	-.28	.05	-.01	.12	.00	-.13
P_8'	-.03	.06	-.12	.08	-.21	.17	.22	.03	.13	.04
P_9'	.16	.27	.02	.20	.08	.26	.30	.03	.33	-.01
P_{10}'	.04	-.11	.11	-.03	.07	-.15	-.13	-.22	-.15	.06
P_{11}'	.01	.07	.00	-.01	.07	.14	.12	.06	.13	.13

Table 36

Correlations between Teacher and Pupil Measures (Sub-sample with teachers with 0-1 years' experience and their middle-class pupils, N = 39)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	-.18	-.10	-.24	-.09	.23	-.13	-.13	-.18	-.05	.09
P_1	-.27	-.20	-.26	-.16	.19	-.21	-.22	-.23	-.11	.00
P_2	-.22	-.18	-.16	-.17	.19	-.15	-.20	-.15	-.10	.04
P_3	-.28	-.17	-.32	-.19	.10	-.28	-.20	-.26	-.19	-.10
P_4	-.21	-.08	-.27	-.07	.08	-.23	-.18	-.25	-.08	-.13
P_5	-.35	-.23	-.32	-.24	.20	-.27	-.26	-.27	-.16	.01
P_6	-.21	-.17	-.36	-.11	.35	-.17	-.08	-.27	-.14	.30
P_7	-.21	.17	-.16	-.25	.27	-.13	-.14	-.16	-.09	.18
P_8	.12	-.03	.18	.01	.13	.13	.00	.26	.08	.15
P_9	-.01	.05	.15	-.09	-.07	-.05	-.07	.05	-.05	-.18
P_{10}	.15	.07	.00	.12	.29	.21	.18	.15	.19	.33
P_{11}	.04	.27	-.22	.15	.33	.00	.06	-.13	.07	.14
P_0'	-.02	-.06	-.01	-.03	.19	.05	.04	.09	.05	.28
P_1'	-.16	-.16	-.12	-.14	.18	-.15	-.09	-.10	-.11	.14
P_2'	-.12	-.18	-.06	-.13	.20	-.07	-.06	.00	-.09	.17
P_3'	-.16	-.15	-.15	-.13	-.07	-.23	-.13	-.10	-.15	.00
P_4'	-.10	-.05	-.09	-.10	.03	-.08	.00	-.06	.03	.11
P_5'	-.21	-.17	-.18	-.20	.21	-.22	-.15	-.16	-.17	.16
P_6'	-.06	-.12	-.11	-.11	.26	.03	.03	.05	-.06	.45
P_7'	-.10	-.09	-.03	-.22	.10	-.01	.02	.10	-.01	.39
P_8'	.40	.17	.45	.37	.15	.42	.12	.44	.23	.10
P_9'	.27	.16	.35	.21	.03	.18	.05	.18	.24	.08
P_{10}'	.08	.02	.07	.04	.18	.31	.20	.27	.24	.27
P_{11}'	-.02	.08	-.07	.03	.25	-.07	-.01	-.06	-.14	.22

Table 37

Correlations between Teacher and Pupil Measures
(Sub-sample with teachers with 2-8 years' experience
and their middle-class pupils, N = 31

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.18	.01	.17	.06	.52	.27	.28	.13	.12	.16
P_1	.12	-.10	.05	.14	.32	.15	.16	-.04	.03	-.02
P_2	.16	-.07	.06	.21	.30	.17	.17	-.02	.04	-.01
P_3	.07	-.03	.04	.00	.44	.13	.17	.02	-.06	.18
P_4	.09	-.04	.08	.02	.38	.22	.24	.08	.11	.14
P_5	.08	-.08	.02	.09	.35	.15	.19	-.03	.10	.07
P_6	.19	-.10	.26	.04	.61	.29	.18	.30	.05	.42
P_7	.13	-.04	.17	.04	.50	.15	.18	.14	-.04	.31
P_8	.04	.23	-.12	.09	-.21	.02	.12	-.17	.30	-.25
P_9	.20	.26	.24	.12	.03	.10	.13	.06	.08	-.16
P_{10}	-.05	-.01	.12	-.07	.19	.16	.18	.25	.11	.03
P_{11}	.05	-.13	.04	-.06	.35	.11	.01	.05	.12	.08
P_0'	-.04	-.05	.10	-.25	.39	.05	.11	-.05	-.07	.32
P_1'	-.16	-.11	-.06	-.26	.22	-.11	.13	-.24	-.18	.24
P_2'	-.09	-.03	-.04	-.19	.24	-.04	.18	-.20	-.12	.26
P_3'	.01	.11	.03	-.21	.38	.10	.27	-.09	-.06	.41
P_4'	-.12	-.14	.14	-.29	.45	.03	.01	.10	-.07	.44
P_5'	-.17	-.23	.00	-.23	.25	-.15	.05	-.18	-.19	.20
P_6'	.12	.16	.20	-.21	.49	.13	.16	.07	-.08	.42
P_7'	-.01	.02	.07	-.24	.18	-.03	.13	-.11	-.11	.26
P_8'	.14	.30	-.13	.30	.00	.09	.25	-.17	.17	-.17
P_9'	.14	.08	.04	.19	-.25	.05	-.12	-.05	.25	-.32
P_{10}'	.05	-.25	.25	.03	.06	.19	-.04	.18	.10	.02
P_{11}'	-.10	-.07	.05	-.20	.21	.14	.16	.08	.15	.28

Table 38

Correlations between Teacher and Pupil Measures
(Sub-sample with teachers with 9-41 years' experience
and their middle-class pupils, N = 32)

Pupil Measures	Teacher Measures									
	T_0	T_1	T_2	T_3	C	T_0'	T_1'	T_2'	T_3'	C'
P_0	.15	.07	.19	.25	.02	.17	.11	.32	.15	-.10
P_1	-.02	-.05	.07	.04	-.09	.02	.00	.19	.03	-.18
P_2	.01	.02	.08	.08	-.04	.06	.01	.22	.04	-.18
P_3	.06	-.09	.15	.09	.03	-.02	-.09	.11	-.06	-.19
P_4	.21	.11	.15	.43	-.09	.23	.19	.30	.25	-.05
P_5	-.09	-.08	-.01	.02	-.20	-.02	.00	.17	.03	-.21
P_6	.03	.08	.12	.14	.11	-.02	-.03	-.13	.06	-.15
P_7	-.08	-.05	-.02	.00	-.09	-.05	-.07	.00	-.03	-.15
P_8	.39	.06	.31	.36	.20	.36	.14	.45	.22	.18
P_9	.58	.45	.37	.48	.18	.56	.38	.41	.48	.21
P_{10}	-.02	.03	.04	.04	.09	.09	.05	.37	-.01	.17
P_{11}	.39	.22	.32	.47	.23	.41	.34	.49	.32	.21
P_0'	.04	.00	-.04	.30	.03	.06	.08	.23	.05	.04
P_1'	-.02	-.08	-.09	.23	-.12	.00	-.05	.16	.01	-.03
P_2'	-.02	-.07	-.10	.22	-.11	.01	-.06	.15	.03	-.03
P_3'	.04	-.08	.01	.21	.10	-.01	-.08	.16	-.05	.08
P_4'	.00	-.04	-.08	.25	.05	.01	.04	.21	.01	.11
P_5'	-.01	-.04	-.11	.27	-.17	.01	.01	.15	.05	-.06
P_6'	-.04	.16	-.07	.18	.12	-.04	.17	-.04	.03	-.03
P_7'	.00	.02	-.01	.21	-.12	.00	.07	.17	-.07	-.18
P_8'	.30	.12	.11	.44	-.05	.31	.28	.36	.23	.00
P_9'	.39	.47	.15	.36	.06	.34	.42	.12	.37	.11
P_{10}'	-.04	-.15	-.08	.10	.20	-.05	-.15	.23	-.12	.31
P_{11}'	-.03	-.08	-.12	.24	.12	.06	.01	.24	.09	.17

hours together, the correlational results in Tables 27-38 suggest influence operating in several directions -- to raise the correlation between teachers' and pupils' measures and to lower the correlation between teachers' and pupils' measures.

Measures correlate most positively for the 36 classes of lower-class pupils and their teachers with 2-8 years of experience, e.g. $r_{T_0P_0} = .51$, $r_{T_0'P_0'} = .27$, $r_{CP_0} = .55$, and $r_{C'P_0'} = .36$. With middle-class pupils, the measures of 31 taachers also with 2-8 years of experience and their classes correlate more positively than other experience groups, e.g. $r_{T_0P_0} = .18$, $r_{T_0'P_0'} = .05$, $r_{CP_0} = .52$, and $r_{C'P_0'} = .32$. Of the total experience groups, it is no surprise to find that the measures of the 67 teachers with 2-8 years' experience and their classes correlate highest of the three experience groups. Correlations lowered from pre- to posttest in both sub-samples. Correlations with MTAI measures and lower-class pupil measures were higher than those with measures of middle-class pupils and their teachers.

By social class alone, teachers' MTAI measures and pupil measures correlate more postively for the sub-samples with lower-class pupils, e.g. $r_{T_0P_0} = .23$, $r_{T_0'P_0'} = .21$, than with middle-class pupils, e.g. $r_{T_0P_0} = .04$, $r_{T_0'P_0'} = .05$. However, with "My Class" measures, the trend is reversed and rs are higher for the sub-sample with middle-class pupils. In examining the sub-samples classified by both social class and teacher experience, we can see that various sub-samples' teachers provide greater difference between their MTAI attitude scores and "My Class" scores than other teachers. As an example, for beginning teachers and lower-class pupils, $r_{T_0C} = .30$ and $r_{T_0'C'} = .53$, and for beginning teachers and middle-class pupils, $r_{T_0C} = .08$ and $r_{T_0'C'} = .23$. For the total sample, $r_{T_0C} = .35$ and $r_{T_0'C'} = .44$, which indicate that the MTAI and "My Class" inventory measure different attitudes of teachers and the difference is greatest for the teachers of middle-class pupils than teachers of lower-class pupils, and beginning teachers of middle-class pupils.

The most negative correlations were found for the measures of 39 beginning teachers and their middle-class pupils, e.g. $r_{T_0P_0} = -.18$. Because posttest measures correlate higher, $r_{T_0'P_0'} = .05$, and beginnors' MTAI mean score of 43.36 at pretest fell to 36.21 at posttest with only slight difference between "About My Teacher" P_0 means, superficial analysis might suggest that direction of influence in this case is from pupil to teacher. In this example, the cross-lagged panel correlational results, $r_{T_0P_0'} = -.02$ and $r_{P_0T_0'} = -.13$, provide little help in determining direction of influence.

Frequencies-of-Shift Results

As discussed in Chapter II, the purpose of refining the data into logical form for analysis by the frequencies-of-shift technique was to observe the distribution of frequencies among the 81 possible resolutions and to test the significance of differences between observed frequencies and expected or theoretical frequencies for previously stated hypotheses by chi square. Since there are five scores for teachers' attitudes (with total MTAI, MTAI Factors I, II, and III, and "My Class"), 12 scores for pupils' attitudes (with total "About My Teacher" and eleven factors, P_1-P_{11}) and 12 groupings of teachers, the study required 720 tables like the example, Table 39, for the distribution of frequencies in the 81 cells described earlier in Figure 1. Table 40 illustrates how frequencies were combined, according to Table 39 rubrics, in a 3 X 3 table, showing the frequencies according to direction-of-change and source-of-influence-toward-change from pretest to posttest. The nine cells of Table 40 were judged to relate to the five hypotheses; chi-square tests indicate that Hypothesis Two (H_2) was not supported and significant chi squares were found for H_1, H_3, H_4, and H_5.

Total Sample. Tables 41-45 present the frequencies-of-shift results for the total sample of 212 teachers. The distribution of frequencies and resultant chi squares for Hypothesis One (H_1) in the teachers' total MTAI, Factor I (T_1), Factor II (T_2), and "My Class" attitude measures and pupils' attitude measures corroborate the correlations in Table 27 where rs between those teacher measures and P_0 and P_0' were significant. The chi square of .12 found between T_3 and pupil measures reflect the insignificant correlations of $r_{T_3P_0} = .10$ and $r_{T_3'P_0'} = .06$ in Table 27. It can be seen in frequencies-of-shift results that H_1 (Congruity > Incongruity) reflects the correlation between teacher and pupil measures as expected.

Whenever significant chi squares are found for Hypotheses Three, Four, and Five, which hypothesize that teachers influence pupils more than being influenced by pupils, the hypotheses are supported. No significant chi squares were obtained for the opposite direction favoring pupils' influence and counter to Hypotheses Three and Four. Significant chi squares were found for Hypothesis Two in the hypothesized direction as well as the opposite direction which reflect the outcomes in H_4 and H_5.

It can be seen that an expected majority of frequencies fell into the cells for Categories V, VI, VIII, and IX (frequencies for the last categories, X and XI, were minimal and added only about one case to totals), which are congruent and incongruent resolutions where no movement across medians was made from pretest to posttest. With about 60% of the frequencies in the four cells of Categories V and VI, the other categories deal with frequencies showing movement and change. This result with the frequencies-of-shift technique is especially noticeable in the smaller sub-samples where chi squares for Hypotheses Four and Five had to be computed with fewer than eight per cent of the total cases. Thus, as discussed in Chapter III,

Table 39

Frequencies of the Various Shifts in Relationship between Teacher's MTAI Factor I, T_1, Scores and Lower-Class Pupils' P_1 scores

(N = 110 Teachers with 0-46 Years' Experience)

Teacher Change from First to Second Testing	1 H→H	2 H→L	3 L→H	4 L→L	5 H→M	6 L→M	7 M→H	8 M→L	9 M→M
1 H→H	22	5	6	15	0	0	0	0	0
2 H→L	1	0	2	1	0	0	0	0	0
3 L→H	1	2	3	0	0	0	0	0	0
4 L→L	12	9	7	21	0	0	0	0	0
5 H→M	1	2	0	0	0	0	0	0	0
6 L→M	0	0	0	0	0	0	0	0	0
7 M→H	0	0	0	0	0	0	0	0	0
8 M→L	0	0	0	0	0	0	0	0	0
9 M→M	0	0	0	0	0	0	0	0	0

Pupil Change from First to Second Testing

Table 40

Categorization of Frequencies in Table 39
According to Direction and Source of Influence

		Direction of Influence			
		Congruity	Incongruity	Uncertain	Total
Source of Influence	Teachers	I 17	II 12	X 0	29
	Pupils	III 2	IV 2	XI 0	4
	Uncertain	V, VIII 46	VI, IX 31	VII 0	77
	Total	65	45	0	110

H_1: Congruity (I + III + V + VIII) > Incongruity (II + IV + VI + IX) $x^2 = 3.28$

H_2: Congruity influence (I + III) > Incongruity influence (II + IV) $x^2 = .48$

H_3: Teacher influence (I + II + X) > Pupil influence (III + IV + XI) $x^2 = 17.45$

H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III) $x^2 = 10.32$

H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV) $x^2 = 5.79$

Table 41

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Pupils' Attitudes
(With total MTAI scores of 212 teachers)

Pupils' Variables	Teacher Influence --- Pupil Influence ----- Uncertain Influence -	Frequencies for Hypotheses* Congruity			Incongruity			Uncertain			Chi Squares for Hypotheses **				
		I	III	V, VIII	II	IV	VI, IX	X	XI	VII	1	2	3	4	5
P_0 to P_0'		29	27	66	22	20	48	0	0	0	4.53	1.72	.09	.02	.02
P_1 to P_1'		24	28	70	28	17	45	0	0	0	4.53	.37	.37	.17	2.22
P_2 to P_2'		27	25	63	27	24	46	0	0	0	1.36	0	.16	.02	.08
P_3 to P_3'		25	23	64	33	18	49	0	0	0	.57	.04	2.59	.02	3.84
P_4 to P_4'		23	27	67	33	14	48	0	0	0	2.08	.04	2.02	.18	6.89
P_5 to P_5'		30	32	58	28	13	51	0	0	0	3.44	3.88	1.40	.02	4.78
P_6 to P_6'		23	16	67	32	22	52	0	0	0	0	2.11	2.75	.92	1.50
P_7 to P_7'		17	19	58	43	21	54	0	0	0	2.50	7.29	3.61	.03	6.89
P_8 to P_8'		30	27	66	22	12	55	0	0	0	5.14	5.32	1.58	.07	1.19
P_9 to P_9'		29	19	61	24	31	48	0	0	0	.12	.35	.04	1.69	.65
P_{10} to P_{10}'		35	18	48	29	30	52	0	0	0	.38	.22	2.01	4.83	0
P_{11} to P_{11}'		18	29	77	23	24	41	0	0	0	5.78	.01	1.29	2.13	0

* H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 42

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Pupils' Attitudes (With "Traditionalistic vs. Modern Beliefs about Child Control" factor* variables (T_1-T_1') of 212 teachers)

		Frequencies for Hypotheses**									Chi Squares for Hypotheses***				
		Congruity			Incongruity			Uncertain							
Pupils' Variables	Teacher Influence --- Pupil Influence ----- Uncertain Influence -	I	III	V, VIII	II	IV	VI, IX	X	XI	VII	1	2	3	4	5
P_0 to P_0'		36	21	73	24	16	42	0	0	0	10.42	2.64	4.99	3.44	1.23
P_1 to P_1'		30	11	81	23	17	50	0	0	0	4.53	0	7.11	7.90	.31
P_2 to P_2'		31	13	77	24	19	48	0	0	0	3.97	0	5.56	6.57	.37
P_3 to P_3'		33	13	74	28	15	49	0	0	0	3.44	.04	11.51	7.85	3.35
P_4 to P_4'		31	13	69	30	16	53	0	0	0	.80	.01	10.68	6.57	3.67
P_5 to P_5'		31	13	72	28	15	53	0	0	0	1.70	0	10.34	6.57	3.35
P_6 to P_6'		34	8	68	32	19	51	0	0	0	.23	.69	15.53	14.88	2.82
P_7 to P_7'		24	14	74	39	12	49	0	0	0	.57	1.62	14.56	2.13	13.25
P_8 to P_8'		25	19	59	40	15	54	0	0	0	.12	1.01	9.09	.57	11.29
P_9 to P_9'		32	28	61	27	10	54	0	0	0	3.97	4.99	4.12	.15	6.92
P_{10} to P_{10}'		34	19	54	36	18	51	0	0	0	0	0	9.57	3.70	5.35
P_{11} to P_{11}'		25	16	67	26	32	46	0	0	0	.04	2.59	.04	1.56	.43

* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. *J. educ. Psychol.*, 1965, 56, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (II+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 43

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Pupils' Attitudes (With "Unfavorable vs. Favorable Opinions About Children" factor* variables (T_2-T_2') of 212 teachers)

Pupils' Variables	Frequencies for Hypotheses** Congruity Teacher Influence --- I	Congruity Pupil Influence ----- III	Congruity Uncertain Influence - V, VIII	Incongruity II	Incongruity IV	Incongruity VI, IX	Uncertain X	Uncertain XI	Uncertain VII	Chi Squares for Hypotheses*** 1	2	3	4	5
P_0 to P_0'	30	21	72	28	19	41	0	0	1	5.48	.09	2.95	1.25	1.36
P_1 to P_1'	25	17	68	31	22	48	1	0	0	.30	1.05	3.01	1.17	1.21
P_2 to P_2'	32	19	72	24	21	43	1	0	0	5.48	.26	2.64	2.82	.09
P_3 to P_3'	29	18	70	36	20	38	0	0	1	2.29	.62	6.56	2.13	4.02
P_4 to P_4'	28	17	71	29	14	52	1	0	0	1.90	.01	7.60	2.22	5.23
P_5 to P_5'	32	18	56	32	22	51	0	0	1	0	.09	5.09	3.38	1.50
P_6 to P_6'	33	19	56	36	19	48	1	0	0	.08	.04	8.90	3.25	4.65
P_7 to P_7'	32	16	69	39	16	39	0	0	1	2.29	.35	14.02	4.69	8.80
P_8 to P_8'	27	18	63	34	15	54	0	0	1	.08	.10	7.76	1.42	6.61
P_9 to P_9'	28	22	58	30	22	51	0	0	1	.08	.01	1.66	.50	.94
P_{10} to P_{10}'	37	28	45	36	18	47	0	0	1	.30	.84	5.68	.98	5.35
P_{11} to P_{11}'	24	26	61	28	31	41	0	0	1	.47	.59	.15	.02	.07

* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. *J. educ. Psychol.*, 1965, 56, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 44

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Pupils' Attitudes
(With "Punitive Intolerance vs. Permissive Tolerance for Child Misbehavior" factor* variables (T_3-T_3') of 212 teachers)

Pupils' Variables	Frequencies for Hypotheses**									Chi Squares for Hypotheses***				
	Congruity			Incongruity			Uncertain							
	Teacher Influence --- I	Pupil Influence ----- III	Uncertain Influence - V, VIII	II	IV	VI, IX	X	XI	VII	1	2	3	4	5
P_0 to P_0'	29	19	60	31	18	53	1	0	1	.12	0	5.40	1.69	2.94
P_1 to P_1'	31	17	65	28	14	55	0	0	2	1.07	.28	8.10	3.52	4.02
P_2 to P_2'	24	14	63	33	17	59	1	0	1	.23	1.38	2.60	2.13	4.50
P_3 to P_3'	34	19	59	38	16	44	1	0	1	.80	0	12.68	3.70	8.17
P_4 to P_4'	27	17	58	39	15	54	0	0	2	.12	.83	11.11	1.84	9.80
P_5 to P_5'	30	20	52	35	13	60	2	0	0	.12	.01	10.89	1.62	9.19
P_6 to P_6'	31	12	56	38	22	51	1	0	1	.58	2.49	11.78	2.53	3.75
P_7 to P_7'	26	17	54	44	16	53	2	0	0	1.07	2.49	13.75	1.49	12.15
P_8 to P_8'	30	21	67	33	8	51	0	0	2	2.98	.88	11.84	1.25	15.24
P_9 to P_9'	40	20	64	21	15	50	0	0	2	6.52	5.51	6.51	6.02	.69
P_{10} to P_{10}'	38	11	53	30	23	55	0	0	2	.12	.09	10.68	13.80	.68
P_{11} to P_{11}'	28	20	61	27	28	46	0	0	2	.23	.35	.35	1.02	0

* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. *J. educ. Psychol.*, 1965, *56*, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 45

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Pupils' Attitudes
(With "My Class" variables of 212 teachers)

	Frequencies for Hypotheses*									Chi Squares for Hypotheses**				
	Congruity			Incongruity			Uncertain							
Teacher Influence --- Pupil Influence ----- Uncertain Influence														
Pupils' Variables	I	III	V, VIII	II	IV	VI, IX	X	XI	VII	1	2	3	4	5
P_0 to P_0'	30	25	65	26	21	44	0	0	1	3.72	.48	.79	.29	.34
P_1 to P_1'	28	18	56	29	25	55	0	0	1	.17	.49	1.69	1.76	.17
P_2 to P_2'	26	20	63	28	21	53	0	0	1	.17	.04	1.52	.54	.73
P_3 to P_3'	28	16	60	35	20	52	0	0	1	.02	1.01	6.83	2.75	3.56
P_4 to P_4'	25	15	61	37	21	52	0	0	1	.30	2.95	6.38	2.03	3.88
P_5 to P_5'	30	23	55	29	15	59	0	0	1	.08	.66	4.12	.68	2.75
P_6 to P_6'	32	18	51	34	23	53	1	0	0	.30	.34	5.79	3.38	1.75
P_7 to P_7'	32	16	69	30	20	44	1	0	0	2.29	.01	6.83	4.69	1.62
P_8 to P_8'	22	19	49	35	20	66	1	0	0	4.27	1.76	3.34	.10	3.56
P_9 to P_9'	31	23	61	21	18	57	0	0	1	1.54	2.11	1.08	.91	.10
P_{10} to P_{10}'	42	24	53	26	22	44	0	0	1	3.20	2.54	3.87	4.38	.19
P_{11} to P_{11}'	24	23	59	23	28	54	0	0	1	0	.09	.09	0	.31

* H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

this technique considers cases of teacher-pupil relationships that indicate greatest shift in attitude from pre- to posttest.

Results with the MTAI factor scores and the "My Class" inventory are more consistent and significant than with the total MTAI. The tendency for high numbers of frequencies to remain unchanged in Categories V and VI for the total MTAI and other teacher measures, however, does not provide any advantage in numbers of frequencies shifting for any one teacher measure.

Detailed discussion of the relationships between each specific teacher measure and each specific pupil measure is beyond the purposes of this report. However, it should be noted in results for the total sample that teachers influenced some pupil attitudes more than others and that teachers' overall dominance was most notable with MTAI Factor I (T_1) and Factor III (T_3). Significant chi squares favoring teacher influence (H_3, H_4, and H_5) were found for all pupil attitudes at least once, except P_{11}, pupils' perceptions of teachers' motivational merit measured with negative items.

Of particular interest is the high incidence of dominant teacher influence toward incongruity found in H_5 results. It can be seen that frequencies for H_4 and H_5 comprise the frequencies for H_3 and that the chi squares for H_3 reflect the combinatorial property of χ^2 in the sum of chi squares for H_4 and H_5.

Sub-Sample with Lower-Class Pupils. Tables 46-50 present the frequencies-of-shift results in attitude relationships between 110 teachers and their classes of lower-class pupils. Very consistent and highly significant chi-square results for H_3, H_4, and H_5 were found with teachers' total MTAI and Factor I scores. Results with MTAI Factors II, III and "My Class" inventory scores were hardly as one-sided and showed distributions of frequencies not favoring significant teacher or pupil influence. Wherever significant chi squares were found, however, teacher influence, as hypothesized, was greater than pupil influence.

The results in Tables 46 and 47 show that pupils' attitudes are dominated by teachers' T_0 and T_1 attitudes both in the congruent and incongruent directions. In general, the frequencies and chi-square results favoring teachers over pupils are roughly equivalent. There are no cases when a significant result is found for H_4 and not for H_5, but there are many relationships with these two teacher measures where a significant χ^2 is found favoring teacher dominance in incongruent influence and lack of significance is found for H_4. It should be pointed out that with T_3 and "My Class" scores, one relationship each had significant χ^2 for H_4 and not for H_5. But with T_0 and T_1 when teacher influence was so overwhelming, that teacher influence over lower-class pupils should be so prominent in the incongruent direction must be noted.

Table 46

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Lower Class Pupils' Attitudes
(With total MTAI scores of 110 teachers)

Pupils' Variables	Frequencies for Hypotheses* Congruity: Teacher Influence --- I	Congruity: Pupil Influence ----- III	Congruity: Uncertain Influence - V, VIII	Incongruity: Teacher Influence II	Incongruity: Pupil Influence IV	Incongruity: Uncertain Influence VI, IX	Uncertain: Teacher Influence X	Uncertain: Pupil Influence XI	Uncertain: Uncertain Influence VII	Chi Squares for Hypotheses** 1	2	3	4	5
P_0 to P_0'	12	8	40	16	5	29	0	0	0	.74	0	4.78	.45	4.76
P_1 to P_1'	15	8	41	14	5	27	0	0	0	2.63	.21	5.36	1.57	3.37
P_2 to P_2'	16	9	43	14	5	23	0	0	0	5.68	.57	5.11	1.44	3.37
P_3 to P_3'	14	5	41	16	6	28	0	0	0	.74	.10	7.90	3.37	3.68
P_4 to P_4'	21	10	29	18	7	25	0	0	0	.74	.45	7.88	3.23	4.00
P_5 to P_5'	17	6	39	15	6	27	0	0	0	1.54	.02	8.20	4.35	3.05
P_6 to P_6'	11	7	40	16	4	32	0	0	0	.23	.03	5.92	.50	6.05
P_7 to P_7'	16	8	33	23	5	25	0	0	0	.08	.17	12.02	2.04	10.32
P_8 to P_8'	8	8	42	14	5	33	0	0	0	.23	.11	1.83	.06	3.37
P_9 to P_9'	15	8	41	13	4	29	0	0	0	2.63	.63	5.63	1.57	3.76
P_{10} to P_{10}'	22	9	27	18	6	28	0	0	0	.23	.65	10.47	4.65	5.04
P_{11} to P_{11}'	8	5	51	9	5	32	0	0	0	2.63	0	1.33	.31	.64

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* H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 47

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Lower Class Pupils' Attitudes (With "Traditionalistic vs. Modern Beliefs about Child Control" factor* variables (T_1-T_1') of 110 teachers)

	Frequencies for Hypotheses**									Chi Squares for Hypotheses***				
	Congruity			Incongruity			Uncertain							
Pupils' Variables	Teacher Influence --- I	Pupil Influence ----- III	Uncertain Influence - V, VIII	II	IV	VI, IX	X	XI	VII	1	2	3	4	5
P_0 to P_0'	15	4	42	16	4	29	0	0	0	1.10	0	12.41	5.26	6.05
P_1 to P_1'	17	2	46	12	2	31	0	0	0	3.28	.48	17.45	10.32	5.79
P_2 to P_2'	17	2	48	13	3	27	0	0	0	4.81	.11	16.46	10.32	5.06
P_3 to P_3'	17	0	50	15	4	24	0	0	0	4.81	.03	20.25	15.06	5.26
P_4 to P_4'	19	3	35	18	3	32	0	0	0	.08	0	20.93	10.23	9.33
P_5 to P_5'	22	1	42	12	3	30	0	0	0	3.28	1.29	22.13	17.39	4.27
P_6 to P_6'	17	2	46	14	5	26	0	0	0	3.28	.03	13.92	10.32	3.37
P_7 to P_7'	15	4	37	26	2	26	0	0	0	.01	1.36	24.60	5.26	18.89
P_8 to P_8'	9	7	43	18	5	28	0	0	0	.45	.92	5.03	.06	6.26
P_9 to P_9'	15	8	36	19	3	29	0	0	0	.45	0	10.76	1.57	10.23
P_{10} to P_{10}'	20	5	32	20	3	30	0	0	0	.08	.02	20.02	7.84	11.13
P_{11} to P_{11}'	12	5	40	13	4	36	0	0	0	.08	.03	6.62	2.12	3.76

* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. *J. educ. Psychol.*, 1965, 56, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 48

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Lower Class Pupils' Attitudes (With "Unfavorable vs. Favorable Opinions About Children" factor* variables (T_2-T_2') of 110 teachers)

	Frequencies for Hypotheses**									Chi Squares for Hypotheses***				
	Congruity			Incongruity			Uncertain							
Teacher Influence ---	I			II			X							
Pupil Influence -----		III			IV			XI						
Pupils' Variables / Uncertain Influence -			V, VIII			VI, IX			VII	1	2	3	4	5
P_0 to P_0'	10	11	35	13	11	27	1	0	2	.15	.09	.02	0	.04
P_1 to P_1'	11	16	34	15	10	21	2	0	1	1.83	.02	.02	.59	.64
P_2 to P_2'	15	16	34	12	13	17	2	0	1	4.52	.45	.02	0	0
P_3 to P_3'	11	11	36	16	9	24	1	0	2	.60	.09	1.02	.05	1.44
P_4 to P_4'	15	11	30	17	11	23	1	0	2	.15	.02	1.82	.35	.89
P_5 to P_5'	14	11	32	17	14	19	1	0	2	.34	.45	.63	.16	.13
P_6 to P_6'	9	16	31	19	10	22	1	0	2	.15	.17	.07	1.44	2.21
P_7 to P_7'	14	17	29	21	7	19	2	0	1	1.35	.07	2.36	.13	6.04
P_8 to P_8'	7	14	33	13	17	23	1	0	2	0	1.25	1.56	1.71	.30
P_9 to P_9'	14	10	31	12	13	27	1	0	2	.04	0	.18	.38	0
P_{10} to P_{10}'	19	14	22	16	9	27	0	0	3	.04	.84	2.09	.48	1.44
P_{11} to P_{11}'	7	14	41	11	14	20	1	0	2	2.39	.20	1.36	1.71	.16

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* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. J. educ. Psychol., 1965, 56, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 49

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Lower Class Pupils' Attitudes (With "Punitive Intolerance vs. Permissive Tolerance for Child Misbehavior" factor* variables (T_3-T_3') of 110 teachers)

	Frequencies for Hypotheses**													
	Congruity			Incongruity			Uncertain			Chi Squares for Hypotheses***				
Pupils' Variables	Teacher Influence --- I	Pupil Influence ----- III	Uncertain Influence - V, VIII	II	IV	VI, IX	X	XI	VII	1	2	3	4	5
P_0 to P_0'	14	13	28	13	9	32	0	0	1	0	.33	.33	0	.41
P_1 to P_1'	13	9	33	14	9	31	0	0	1	0	0	1.42	.41	.70
P_2 to P_2'	13	11	29	16	11	29	0	0	1	.04	.08	.71	.04	.59
P_3 to P_3'	21	10	28	11	9	30	0	0	1	.59	1.96	2.82	3.23	.05
P_4 to P_4'	21	11	23	14	9	31	0	0	1	0	1.16	3.56	2.53	.70
P_5 to P_5'	17	10	26	17	11	28	0	0	1	.04	0	2.62	1.33	.89
P_6 to P_6'	14	7	37	11	10	30	0	0	1	.33	.02	1.17	1.71	0
P_7 to P_7'	12	9	35	20	4	29	0	0	1	.04	.09	7.20	.19	9.38
P_8 to P_8'	8	13	36	13	8	31	0	0	1	.15	.02	.02	.76	.76
P_9 to P_9'	18	14	36	12	9	20	0	0	1	6.20	1.89	.68	.28	.19
P_{10} to P_{10}'	21	12	27	13	9	27	0	0	1	.92	1.82	2.62	1.94	.41
P_{11} to P_{11}'	12	13	36	8	10	30	0	0	1	1.32	.84	.09	0	.06

* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. J. educ. Psychol., 1965, 56, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 50

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Lower Class Pupils' Attitudes (With "My Class" variables of 110 teachers)

	Frequencies for Hypotheses*									Chi Squares for Hypotheses**				
	Congruity			Incongruity			Uncertain							
Pupils' Variables	Teacher Influence --- I	Pupil Influence ----- III	Uncertain Influence - V, VIII	Teacher Influence II	Pupil Influence IV	Uncertain Influence VI, IX	Teacher Influence X	Pupil Influence XI	Uncertain Influence VII	1	2	3	4	5
P_0 to P_0'	16	14	35	11	11	23	0	0	0	3.28	.94	.02	.03	.05
P_1 to P_1'	14	13	30	13	13	27	0	0	0	.08	0	0	0	.05
P_2 to P_2'	15	14	32	11	12	26	0	0	0	1.10	.48	.02	0	0
P_3 to P_3'	15	7	33	12	15	28	0	0	0	.01	.33	.33	2.23	.15
P_4 to P_4'	16	9	34	15	13	23	0	0	0	.45	.08	1.21	1.44	.05
P_5 to P_5'	13	12	32	14	11	28	0	0	0	.08	.02	.18	0	.16
P_6 to P_6'	8	12	37	16	9	28	0	0	0	.08	.36	.09	.45	1.44
P_7 to P_7'	16	11	37	15	9	22	0	0	0	2.63	.08	1.96	.59	1.04
P_8 to P_8'	10	21	30	13	9	27	0	0	0	1.10	1.21	.68	3.23	.41
P_9 to P_9'	20	13	32	6	13	26	0	0	0	3.28	3.25	.02	1.09	1.89
P_{10} to P_{10}'	18	12	23	18	17	22	0	0	0	.08	.25	.55	.83	0
P_{11} to P_{11}'	7	12	38	11	14	28	0	0	0	.08	.57	1.11	.84	.16

* H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Sub-Sample with Middle-Class Pupils. Tables 51-55 present the frequencies-of-shift results in attitude relationships between 102 teachers and their classes of middle-class pupils. In sharp contrast to the results with lower-class pupils, the results with teachers and middle-class pupils show more mutual influence operating in attitude relationships. The relationships between middle-class pupils' attitudes and those of their taachers indicate an interactive influence, i.e., one operating in both directions; the cases indicating pupil influence are slightly less frequent than those indicating teacher influence. For the lower-class group, however, the cases indicating pupil influence are only about one-third as great as those indicating teacher influence.

With middle-class pupils and MTAI scores, H_1 was only supported with isolated significant results, which is also in contrast to results found with lower-class pupils and reflects the mostly insignificant correlations given earlier in Table 29. The significant H_1 results with "My Class" scores, however, reflects what was discussed earlier in this chapter that for teachers of middle-class pupils, the MTAI measures and "My Class" inventory provide measurements of differing attitudes of teachers toward their pupils.

Although the significant results that were found in attitude relationships with middle-class pupils favored teacher influence, two significant chi squares favored pupil influence: H_4 with T_3-P_0 and H_5 with T_2-P_6.

Sub-Samples by Teachers' Years of Experience. Tables 56-58 present summaries of the frequencies-of-shift H_3, H_4, and H_5 results for the sub-samples by teachers' years of teaching experience -- 0-1, 2-8, 9-46 years.

In Table 56, some relationships with beginning teachers are dominated by pupils, but most of the significant chi squares support teacher influence. In Table 57 where relationships between the attitude measures of pupils and teachers with 2-8 years' experience are presented, teacher dominance is more pronounced than in results with beginning teachers. There is, however, one relationship (T_3-P_4 for H_4) where pupils' perception of teacher cognitive merit causes teachers' MTAI Factor III attitude to shift. Table 58 presents relationships with the most experienced teachers. Teacher influence predominates in the relationships where significant chi squares are found; no relationships show significant results favoring pupil influence. In Tables 56-58, we can see in general teacher influence causing pupils' attitudes to shift more than pupils causing teachers' attitudes to shift. Although beginning teachers' attitudes tend to cause pupils' attitudes to shift, there is a marked difference between the number of significant chi squares favoring teachers for beginning teachers in Table 56 and those experienced teachers in Tables 57 and 58. Also, the number of relationships favoring pupil influence in results for the beginning teachers contrasts with the results for the experienced teachers. As teaching experience increases, teacher influence appears to predominate more over pupil influence.

Table 51

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Middle Class Pupils' Attitudes
(With total MTAI scores of 102 teachers)

Pupils' Variables	Frequencies for Hypotheses*									Chi Squares for Hypotheses**				
	Congruity			Incongruity			Uncertain							
Teacher Influence ---	I			II			X							
Pupil Influence -----		III			IV			XI						
Uncertain Influence -			V, VIII			VI, IX			VII	1	2	3	4	5
P_0 to P_0'	8	12	29	14	6	33	0	0	0	.09	.03	.23	.45	2.45
P_1 to P_1'	15	10	24	16	7	30	0	0	0	.09	.02	3.52	.64	2.78
P_2 to P_2'	13	9	29	15	7	29	0	0	0	.01	.02	2.75	.41	2.23
P_3 to P_3'	7	10	28	17	8	32	0	0	0	1.19	1.17	.60	.24	2.56
P_4 to P_4'	10	9	28	17	7	31	0	0	0	.48	.37	2.33	0	3.38
P_5 to P_5'	10	8	29	11	8	36	0	0	0	.48	0	.43	.06	.21
P_6 to P_6'	15	10	28	9	8	32	0	0	0	.09	1.17	.60	.64	0
P_7 to P_7'	12	10	27	14	8	31	0	0	0	.09	.02	1.11	.05	1.14
P_8 to P_8'	16	6	33	14	10	23	0	0	0	.48	.02	3.67	3.68	.38
P_9 to P_9'	10	5	40	14	9	24	0	0	0	.48	1.29	2.13	1.07	.70
P_{10} to P_{10}'	16	7	30	9	7	33	0	0	0	.09	.92	2.56	2.78	.06
P_{11} to P_{11}'	10	9	28	16	10	29	0	0	0	.48	.80	.80	0	.96

* H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p > .05$ level are underlined.

Table 52

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Middle Class Pupils' Attitudes (With "Traditionalistic vs. Modern Beliefs about Child Control" factor* variables (T_1-T_1') of 102 teachers)

Pupils' Variables	Frequencies for Hypotheses** Congruity Teacher Influence --- I	Congruity Pupil Influence ----- III	Congruity Uncertain Influence - V, VIII	Incongruity II	Incongruity IV	Incongruity VI, IX	Uncertain X	Uncertain XI	Uncertain VII	Chi Squares for Hypotheses*** 1	2	3	4	5
P_0 to P_0'	6	12	28	14	8	33	0	0	1	.63	.23	.03	1.39	1.14
P_1 to P_1'	12	9	23	16	10	31	0	0	1	1.43	.34	1.36	.19	.96
P_2 to P_2'	12	10	24	15	11	29	0	0	1	.63	.19	.52	.05	.35
P_3 to P_3'	7	11	24	14	12	33	0	0	1	2.53	1.11	.02	.50	.04
P_4 to P_4'	10	10	28	17	10	26	0	0	1	.16	.77	.77	.05	1.38
P_5 to P_5'	8	12	24	14	10	33	0	0	1	1.43	.20	.02	.45	.38
P_6 to P_6'	17	11	22	9	11	31	0	0	1	0	1.02	.19	.89	.05
P_7 to P_7'	14	13	25	11	9	29	0	0	1	.04	.77	.09	0	.05
P_8 to P_8'	21	8	32	10	10	20	1	0	0	3.96	1.31	3.38	4.97	.05
P_9 to P_9'	14	9	36	13	12	17	1	0	0	2.53	.02	.73	.70	0
P_{10} to P_{10}'	10	8	25	13	9	36	0	0	1	1.94	.23	.63	.06	.41
P_{11} to P_{11}'	9	10	28	13	12	29	1	0	0	.36	.57	0	0	0

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* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. *J. educ. Psychol.*, 1965, 56, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 53

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Middle Class Pupils' Attitudes (With "Unfavorable vs. Favorable Opinions About Children" factor* variables (T_2-T_2') of 102 teachers)

Pupils' Variables	Frequencies for Hypotheses**									Chi Squares for Hypotheses***				
	Congruity			Incongruity			Uncertain							
Teacher Influence --- Pupil Influence ----- Uncertain Influence -	I	III	$\overline{V}$, VIII	II	IV	VI, IX	X	XI	VII	1	2	3	4	5
P_0 to P_0'	14	12	21	9	15	31	0	0	0	.48	.02	.18	.04	1.04
P_1 to P_1'	17	8	20	12	15	30	0	0	0	1.19	.02	.48	2.56	.15
P_2 to P_2'	15	9	23	11	14	30	0	0	0	.48	0	.08	1.04	.16
P_3 to P_3'	12	13	24	11	13	29	0	0	0	.09	0	.08	0	.04
P_4 to P_4'	19	10	22	10	13	28	0	0	0	.01	.48	.48	2.21	.17
P_5 to P_5'	14	10	23	8	17	30	0	0	0	.48	0	.33	.38	2.56
P_6 to P_6'	16	11	22	7	17	29	0	0	0	$\overline{.09}$	$\overline{.08}$	$\overline{.31}$	.59	$\underline{3.38}$
P_7 to P_7'	18	8	27	8	16	25	0	0	0	.09	.02	.02	$\underline{3.12}$	2.04
P_8 to P_8'	19	12	30	12	14	15	0	0	0	$\underline{3.54}$	.28	.28	1.16	.04
P_9 to P_9'	11	12	34	12	12	21	0	0	0	1.19	0	0	0	.04
P_{10} to P_{10}'	14	14	33	12	8	21	0	0	0	$\underline{3.54}$	1.02	.19	.04	.45
P_{11} to P_{11}'	12	10	25	11	16	28	0	0	0	.48	.33	.08	.05	.59

* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. *J. educ. Psychol.*, 1965, 56, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+V) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 54

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Middle Class Pupils' Attitudes (With "Punitive Intolerance vs. Permissive Tolerance for Child Misbehavior" factor* variables (T_3-T_3') of 102 teachers)

Pupils' Variables	Frequencies for Hypotheses** Congruity: Teacher Influence --- I	Congruity: Pupil Influence ----- III	Congruity: Uncertain Influence - V, VIII	Incongruity: Teacher Influence II	Incongruity: Pupil Influence IV	Incongruity: Uncertain Influence VI, IX	Uncertain: Teacher Influence X	Uncertain: Pupil Influence XI	Uncertain: Uncertain Influence VII	Chi Squares for Hypotheses*** 1	2	3	4	5
P_0 to P_0'	4	14	29	17	12	26	0	0	0	.48	2.13	.34	4.50	.55
P_1 to P_1'	13	13	23	16	12	25	0	0	0	.09	.02	.17	.04	.32
P_2 to P_2'	11	14	22	18	12	25	0	0	0	.48	.29	.07	.16	.83
P_3 to P_3'	8	13	24	14	13	30	0	0	0	1.19	.52	.19	.76	0
P_4 to P_4'	9	11	31	17	13	21	0	0	0	.01	1.62	.02	.05	.30
P_5 to P_5'	10	12	27	12	14	27	0	0	0	.09	.19	.19	.05	.04
P_6 to P_6'	10	11	26	12	13	30	0	0	0	.48	.20	.02	0	0
P_7 to P_7'	9	13	25	17	14	24	0	0	0	.48	1.21	0	.41	.13
P_8 to P_8'	18	11	28	11	10	24	0	0	0	1.19	.98	.98	1.24	0
P_9 to P_9'	15	14	34	10	10	19	0	0	0	5.19	1.31	0	0	.05
P_{10} to P_{10}'	15	12	26	12	11	26	0	0	0	.09	.18	.18	.15	0
P_{11} to P_{11}'	10	10	29	16	15	22	0	0	0	.09	1.96	0	.05	0

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* From Horn, J. L., & Morrison, W. E. Dimensions of teacher attitudes. *J. educ. Psychol.*, 1965, 56, 118-125.

** H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

*** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 55

Frequencies and Chi Squares for Hypotheses on Relationships Between Teachers' and Middle Class Pupils' Attitudes
(With "My Class" variables of 102 teachers)

	Frequencies for Hypotheses*													
	Congruity			Incongruity			Uncertain			Chi Squares for Hypotheses**				
Pupils' Variables	Teacher Influence --- I	Pupil Influence ----- III	Uncertain Influence - V, VIII	II	IV	VI, IX	X	XI	VII	1	2	3	4	5
P_0 to P_0'	12	8	40	9	12	21	0	0	0	2.83	0	0	.45	.19
P_1 to P_1'	15	6	43	13	9	16	0	0	0	6.13	0	3.35	3.05	.41
P_2 to P_2'	14	5	43	11	10	19	0	0	0	4.32	.03	2.03	3.37	0
P_3 to P_3'	9	7	46	13	12	15	0	0	0	4.32	1.56	.10	.06	0
P_4 to P_4'	14	11	37	14	9	17	0	0	0	4.32	.02	1.02	.16	.70
P_5 to P_5'	12	9	41	11	10	19	0	0	0	4.32	.02	.21	.19	0
P_6 to P_6'	11	5	44	11	12	19	0	0	0	2.83	.92	.41	1.56	0
P_7 to P_7'	11	7	38	12	11	23	0	0	0	.79	.39	.39	.50	0
P_8 to P_8'	13	12	27	18	6	26	0	0	0	.01	0	2.94	0	5.04
P_9 to P_9'	12	11	21	17	11	30	0	0	0	1.66	.31	.71	0	.89
P_{10} to P_{10}'	9	5	38	15	9	26	0	0	0	.01	2.13	2.13	.64	1.04
P_{11} to P_{11}'	12	8	38	15	14	15	0	0	0	1.66	1.31	.33	.45	0

* H_1: Congruity (I+III+V+VIII) > Incongruity (II+IV+VI+IX); H_2: Congruity influence (I+III) > Incongruity influence (II+IV); H_3: Teacher influence (I+II+X) > Pupil influence (III+IV+XI); H_4: Teacher influence toward congruity (I) > Pupil influence toward congruity (III); and H_5: Teacher influence toward incongruity (II) > Pupil influence toward incongruity (IV).

** Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 56

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Frequencies of Shift in Relationships between Class Means of Pupils' Attitudes and Beginning Teachers' Attitudes
(N = 64)

Pupil	Hypothesis Three					Hypothesis Four					Hypothesis Five				
	Teacher Variables														
Variables	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_1	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_2	**	-	-	-	-	-	-	-	-	-	-	-	-	*	-
P_3	*	-	-	-	-	-	-	-	-	-	***	-	-	-	-
P_4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_5	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_6	-	-	-	-	-	-	-	-	(*)	-	-	-	-	-	-
P_7	*	-	-	-	-	-	-	-	-	-	*	-	-	*	-
P_8	***	-	-	-	-	*	**	*	-	-	-	-	-	-	-
P_9	****	-	-	-	-	-	-	-	*	-	**	-	-	-	-
P_{10}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_{11}	-	-	(***)	-	(*)	-	-	(**)	-	-	-	-	-	*	-

* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$

Parentheses around asterisks indicate results where pupils dominate in direction of influence.

Table 57

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Frequencies of Shift in Relationships between Class Means of Pupils' Attitudes and Attitudes of Teachers with 2-8 Years' Experience (N = 67)

Pupil	Hypothesis Three					Hypothesis Four					Hypothesis Five				
						Teacher Variables									
Variables	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-
P_1	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-
P_2	-	*****	**	-	**	-	**	-	-	**	**	**	-	**	-
P_3	-	-	-	-	-	-	-	-	-	**	-	-	-	*	-
P_4	-	-	-	-	-	-	-	-	(*)	-	-	-	-	-	-
P_5	-	***	*	-	-	-	-	*	-	*	-	**	-	-	-
P_6	-	**	-	-	-	-	****	-	-	-	*	-	-	-	-
P_7	-	*	-	-	-	-	-	-	-	-	-	**	-	*	-
P_8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_{10}	*	****	****	*	**	-	*	-	-	**	-	*	****	-	-
P_{11}	-	-	-	-	-	-	-	-	-	-	-	-	*	-	-

* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$; ***** $p < .0001$

Parentheses around asterisks indicate results where pupils dominate in direction of influence.

Table 58

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Frequencies of Shift in Relationships between Class Means of Pupils' Attitudes and Attitudes of Teachers with 9-46 Years' Experience (N = 81)

Pupil	Hypothesis Three					Hypothesis Four					Hypothesis Five				
						Teacher Variables									
Variables	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	-	-	**	-	*	-	-	-	-	***	-	-	*	-	-
P_1	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-
P_2	-	***	-	-	-	*	*	-	*	-	-	-	-	-	-
P_3	-	****	-	-	-	-	**	-	**	-	-	-	-	-	-
P_4	-	***	-	-	-	-	*	-	*	-	-	*	*	-	-
P_5	-	**	-	-	-	*	-	-	-	-	-	*	-	-	-
P_6	-	**	-	-	-	**	-	-	-	-	-	-	-	-	-
P_7	-	*	-	-	-	-	-	-	**	-	-	*	-	-	-
P_8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_9	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-
P_{10}	-	***	-	*	-	-	-	-	-	-	-	*	-	-	-
P_{11}	-	*	-	-	-	-	-	-	-	*	-	-	-	-	-

* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$

Since frequencies for H_3, H_4, and H_5 from the frequencies-of-shift technique are of teacher-class pairs that are most outstanding in change from pretest to posttest, we can summarize this series of analyses by saying that of the teacher-class pairs changing most, teachers tend to cause pupils to shift more in attitudes than pupils cause teachers to shift. Results for lower-class pupils yielded significant frequencies-of-shift much more often than did results for middle-class pupils. This difference was most striking in the relationship between pupils' attitudes and MTAI Factor I, "Traditionalistic vs. Modern Beliefs about Child Control," as can be seen in Tables 47 and 52. In Table 47, the rssults for MTAI Factor I and lower-class pupils indicate influence flowing predominantly from the teacher to the pupils. On the other hand, in Table 52, the results between scores on MTAI Factor I and middle-class pupils' attitudes did not predominantly indicate either teacher or pupil influence.

In analyses by teachers' years of experience, the results suggest that teaching experience may be a factor in how predominantly teachers influence pupil behaviors.

Results with the Analysis-of-Shift Technique

As a complementary approach to the frequencies-of-shift technique, the analysis-of-shift method considers all teacher-class pairs in tests of Hypotheses Three, Four, and Five rather than just those teacher-class pairs that exhibit shift across measures' medians. Thus, a more generalized estimate of causality in the relationships between teachers' and pupils' attitudes may be made with the analysis-of-shift technique. However, since all teacher-class pairs are tabulated within one of the categories of teacher or pupil influence without weighting, and some will have shifted with differing degree in attitude relationships than others in the analysis-of-shift technique, the frequencies-of-shift technique can be used to provide comparative results for those that shift most.

Tables 59-62 present selected results for illustration. In Table 59 showing results with teachers' total MTAI measures and pupils' total "About My Teacher" measures, the total sample has a significant chi square favoring incongruent teacher influence and an insignificant result for congruent teacher influence. The significant results for H_3 reflects the significant results in H_5 in combination with the favorable difference of frequencies for H_4. Similar but more significant results can be seen for the sub-sample with all lower-class pupils. No significant chi squares were found for the sub-sample with all middle-class pupils or for any other sub-sample. Of particular interest here are the significant results for teachers' influence causing lower-class pupils to shift in an incongruent direction.

In Table 60, similar but more significant results to those in Table 59 are presented. Teachers' MTAI Factor I scores are related with pupils' total "About My Teacher" scores. The highly significant

Table 59

Stability, Same-Occasion, Cross-Lagged Correlations and Analysis-of-Shift Results between Teacher Variable T_0 and Pupil Variable P_0

Pupils' Social Class	Tchrs.' Years of Exp.	N	Correlations $r_{T_0T_0'}$	$r_{P_0P_0'}$	$r_{T_0P_0}$	$r_{T_0'P_0'}$	$r_{T_0P_0'}$	$r_{P_0T_0'}$	Frequencies TC	TI	PC	PI	Chi Squares for Hypotheses* H_3	H_4	H_5
Both	0-46	212	.79	.69	.19	.17	.10	.20	56	65	45	46	3.97	.99	2.92
LC	0-46	110	.76	.62	.23	.21	.08	.25	33	38	21	18	8.74	2.24	6.45
MC	0-41	102	.80	.71	.04	.05	.02	.06	28	25	24	25	.09	.17	.02
Both	0-1	64	.71	.72	-.03	.18	.02	.06	20	19	15	10	2.64	.46	2.21
Both	2-8	67	.81	.62	.40	.20	.20	.34	13	22	14	18	.06	.04	.23
Both	9-46	81	.84	.71	.15	.12	.06	.18	23	24	20	14	1.78	.09	2.13
LC	0-1	25	.64	.71	.20	.36	.01	.45	6	9	7	3	.64	.08	2.08
LC	2-8	36	.78	.60	.51	.27	.25	.35	10	12	4	10	1.36	1.79	.05
LC	9-46	49	.81	.61	.04	.07	.00	.02	16	10	12	11	.08	.32	.05
MC	0-1	39	.78	.73	-.18	.05	-.02	-.13	14	7	10	8	.10	.38	.07
MC	2-8	31	.82	.57	.18	.05	-.04	.27	4	11	10	6	.03	1.79	.94
MC	9-41	32	.87	.78	.15	.06	.04	.17	9	9	7	7	.28	.06	.06

* H_3: TC + TI > PC + PI; H_4: TC > PC; and H_5: TI > PI. Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 60

Stability, Same-Occasion, Cross-Lagged Correlations and Analysis-of-Shift Results between Teacher Variable T_1 and Pupil Variable P_0

Pupils' Social Class	Tchrs.' Years of Exp.	N	Correlations						Frequencies				Chi Squares for Hypotheses*		
			$r_{T_1T_1'}$	$r_{P_0P_0'}$	$r_{T_1P_0}$	$r_{T_1'P_0'}$	$r_{T_1P_0'}$	$r_{P_0T_1'}$	TC	TI	PC	PI	H_3	H_4	H_5
Both	0-46	212	.79	.69	.19	.17	.10	.20	60	70	49	33	10.42	.92	12.58
LC	0-46	110	.82	.62	.29	.21	.14	.27	29	44	23	14	11.14	.48	14.50
MC	0-41	102	.74	.71	.00	.06	-.04	.06	27	23	32	20	.01	.27	.09
Both	0-1	64	.71	.72	.08	.10	.07	.03	18	17	16	13	.39	.03	.30
Both	2-8	67	.75	.62	.26	.28	.23	.31	19	20	13	15	1.49	.78	.46
Both	9-46	81	.85	.71	.15	.11	.00	.17	24	27	19	11	4.94	.37	5.92
LC	0-1	25	.84	.71	.36	.18	.20	.35	9	8	4	4	2.56	1.23	.75
LC	2-8	36	.77	.60	.43	.46	.41	.35	13	14	5	4	8.03	2.72	4.50
LC	9-46	49	.83	.61	.06	.05	-.11	.09	15	16	13	5	2.94	.04	4.76
MC	0-1	39	.59	.73	-.10	.04	-.06	-.13	11	10	10	8	10	.05	.06
MC	2-8	31	.75	.57	.01	.11	-.05	.28	8	10	8	5	.52	.06	1.07
MC	9-41	32	.86	.78	.07	.08	.00	.11	8	9	9	6	.03	.06	.27

* H_3: TC + TI > PC + PI; H_4: TC > PC; and H_5: TI > PI. Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 61

Stability, Same-Occasion, Cross-Lagged Correlations and Analysis-of-Shift Results between Teacher Variable T_1 and Pupil Variable P_5

Pupils' Social Class	Tchrs.' Years of Exp.	N	Correlations $r_{T_1T_1'}$	$r_{P_5P_5'}$	$r_{T_1P_5}$	$r_{T_1'P_5'}$	$r_{T_1P_5'}$	$r_{P_5T_1'}$	Frequencies TC	TI	PC	PI	Chi Squares for Hypotheses* H_3	H_4	H_5
Both	0-46	212	.79	.59	.00	.06	.00	.01	60	65	50	37	6.46	.74	2.15
LC	0-46	110	.82	.55	.14	.16	.10	.09	37	38	23	12	13.83	2.82	12.50
MC	0-41	102	.74	.64	-.12	-.05	-.12	-.05	25	26	30	21	.01	.29	.34
Both	0-1	64	.71	.68	-.14	.02	.00	-.15	21	15	14	14	.77	1.03	.03
Both	2-8	67	.75	.53	.09	.25	.18	.21	20	21	14	12	2.93	.74	1.94
Both	9-46	81	.85	.55	-.03	-.05	-.14	-.06	24	33	15	9	12.64	1.64	12.60
LC	0-1	25	.84	.67	.10	.26	.23	.16	8	7	6	4	.64	.07	.36
LC	2-8	36	.77	.57	.26	.37	.35	.24	18	10	3	5	10.03	9.33	1.07
LC	9-46	49	.83	.50	.01	-.07	-.20	-.08	14	18	11	6	4.00	.16	5.04
MC	0-1	39	.59	.72	-.24	-.15	-.17	-.26	11	9	9	10	.03	.05	.05
MC	2-8	31	.75	.58	-.08	.05	-.23	.19	4	11	12	4	.03	3.06	2.40
MC	9-41	32	.86	.64	-.08	.01	-.05	.00	7	10	8	7	.03	.07	.24

* H_3: TC + TI > PC + PI; H_4: TC > PC; and H_5: TI > PI. Yates' correction applied to chi squares; chi square dquals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

Table 62

Stability, Same-Occasion, Cross-Lagged Correlations and
Analysis-of-Shift Results between Teacher Variable T_1 and Pupil Variable P_2

Pupils' Social Class	Tchrs.' Years of Exp.	N	Correlations $r_{T_1T_1'}$	$r_{P_2P_2'}$	$r_{T_1P_2}$	$r_{T_1'P_2'}$	$r_{T_1P_2'}$	$r_{P_2T_1'}$	Frequencies TC	TI	PC	PI	Chi Squares for Hypotheses* H_3	H_4	H_5
Both	0-46	212	.79	.65	.12	.16	.07	.14	60	62	50	40	4.53	.74	4.32
LC	0-46	110	.82	.67	.23	.25	.15	.22	37	32	25	16	6.63	1.95	4.69
MC	0-41	102	.74	.64	-.06	.01	-.09	.01	27	26	31	18	.09	.16	1.11
Both	0-1	64	.71	.64	.02	.07	.00	-.02	16	21	15	12	1.27	.03	1.94
Both	2-8	67	.75	.60	.17	.39	.26	.35	24	20	16	7	5.97	1.23	5.33
Both	9-46	81	.85	.68	.05	.03	-.05	.01	28	22	21	10	4.00	.73	3.78
LC	0-1	25	.84	.77	.40	.23	.18	.38	5	10	4	6	.64	.11	.56
LC	2-8	36	.77	.64	.41	.58	.46	.56	13	8	10	5	.69	.17	.31
LC	9-46	49	.83	.66	.01	.03	-.10	-.05	18	15	11	5	5.22	1.24	4.05
MC	0-1	39	.59	.60	-.18	-.06	-.18	-.21	10	9	13	7	.03	.17	.06
MC	2-8	31	.75	.59	-.07	.19	-.03	.18	10	8	10	3	.52	.05	1.45
MC	9-41	32	.86	.73	.02	-.06	-.07	.02	8	8	9	7	.03	.06	.07

* H_3: TC + TI > PC + PI; H_4: TC > PC; and H_5: TI > PI. Yates' correction applied to chi squares; chi square equals 2.71 at .05 level of significance, 3.84 at .02 level, 5.41 at .01 level, and 6.64 at .001 level, one-tailed with 1 df. Chi squares with $p < .05$ level are underlined.

results for the sub-sample with lower-class pupils are reflected again in results for the total sample and the two sub-samples with lower-class pupils taught by experienced teachers. Again, the most significant results indicate teachers' incongruent influence predominating over lower-class pupils.

In Table 61, significant results show teacher influence causing pupils' perceptions of teachers' explaining ability to shift in congruent and incongruent directions. For the total sample, teachers cause pupils to shift significantly toward congruity. With lower-class pupils, teachers' influence predominates over pupils' influence in both the congruent and incongruent directions, but with more significant difference for incongruent influence.

A χ^2 of 12.60 for H_5 was found for the sub-sample with all teachers of 9-46 years' experience, which indicates that teachers with greatest experience greatly influence their pupils' attitude toward teachers' explaining ability in an incongruent direction; i.e., influence which causes their pupils to shift in a direction opposite to their own. The significant H_5 result for the sub-sample with lower-class pupils and teachers of 9-46 years' experience and the insignificant H_5 result for the sub-sample with middle-class pupils and teachers of 9-41 years' experience suggest that the older teachers of lower-class pupils are more liable to cause incongruent shift in their pupils' cognitive attitude. In contrast, a significant χ^2 of 9.33 shows that lower-class pupils with teachers of 2-8 years' experience are influenced congruently in their attitude toward their teacher. These results are reflected in the same occasion correlations, e.g., for the sub-sample with older teachers of lower-class pupils, $r_{T_1P_5} = .01$ declines to $r_{T_1'P_5'} = -.07$, while $r_{T_1P_5} = .26$ increases to $r_{T_1'P_5'} = .37$ for the group with teachers of 2-8 years' experience.

The only significant chi square in the years-of-experience sub-samples with middle-class pupils was in the 2-8 years' experience group where pupils' congruent influence caused their teachers' Factor I attitude to shift significantly. The contrast between such results by pupils' social class for the teachers of 2-8 years of experience may be partially explained by examining attitude means later.

In Table 62 as in Tables 59 and 60, significant results when found support H_3 and H_5 -- the former drawing greatest support from the differences in frequencies for incongruent influence.

Tables 63-68 present summarized results for the groups with largest Ns. For closer analyses of results which are beyond the scope of this report, Appendix D contains all results by the analysis-of-shift technique for this study.

Tables 63-68 show strong support for Hypotheses 3, 4, and 5 in results for the total sample, the sub-sample with all lower-class pupils, and the sub-sample with teachers of 9-46 years' experience,

Table 63

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Analyses of Shift in Relationships between Class Means of Pupils' Attitudes and Teachers' Attitudes
(N = 212)

Pupil Variables	Hypothesis Three					Hypothesis Four					Hypothesis Five				
	Teacher Variables														
	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	**	****	-	-	-	-	-	-	-	-	*	*****	-	-	-
P_1	**	**	-	-	-	-	-	-	-	-	*	****	-	-	-
P_2	-	**	-	-	-	-	-	-	-	-	-	**	-	-	-
P_3	-	*****	*	*	-	-	-	-	-	-	*	****	*	-	-
P_4	*	****	-	-	-	-	**	-	-	-	-	*	-	-	-
P_5	***	****	-	*	-	*	-	-	-	-	-	****	-	-	-
P_6	****	****	-	*	(**)	-	****	-	-	(**)	****	-	-	-	-
P_7	****	****	*	***	-	*	**	*	-	-	***	**	-	**	-
P_8	*****	*****	-	****	-	****	*****	-	*	-	***	*****	*	*	**
P_9	*****	*****	-	*****	-	****	****	-	****	-	****	****	*	**	-
P_{10}	*****	*****	*	****	-	**	*****	-	-	-	*****	*****	-	***	-
P_{11}	-	**	-	-	(*)	-	-	*	-	(**)	-	*	-	-	-

Parentheses around asterisks indicate results where pupils dominate in direction of influence.
* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$; ***** $p < .0001$

Table 64

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Analyses of Shift in Relationships between Class Means of Lower Class Pupils' Attitudes and Teachers' Attitudes
(N = 110)

Pupil	Hypothesis Three					Hypothesis Four					Hypothesis Five				
	Teacher Variables														
Variables	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	****	*****	-	-	-	-	-	-	-	-	****	*****	-	-	-
P_1	-	**	-	-	-	-	-	-	-	-	-	***	-	-	-
P_2	-	****	-	-	-	-	-	-	-	-	-	**	-	-	-
P_3	****	*****	-	-	-	*	-	-	-	-	**	*****	-	-	-
P_4	*	*****	-	**	-	-	****	-	**	-	-	****	-	-	-
P_5	**	*****	**	****	-	-	*	-	-	-	-	*****	-	**	-
P_6	-	*****	-	-	-	-	***	-	-	-	*	**	-	-	-
P_7	*****	*****	*	****	-	*	****	-	*	-	*****	*****	***	**	-
P_8	***	*****	-	-	-	-	-	-	-	-	****	*****	*	-	***
P_9	****	*****	-	****	-	-	-	-	-	-	****	*****	-	****	-
P_{10}	*****	*****	-	***	-	****	****	-	*	-	****	*****	-	-	-
P_{11}	**	*****	-	*	-	-	****	-	-	-	-	****	-	-	-

* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$; ***** $p < .0001$

Table 65

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Analyses of Shift in Relationships between Class Means of Middle Class Pupils' Attitudes and Teachers' Attitudes (N = 102)

Pupil	Hypothesis Three					Hypothesis Four					Hypothesis Five				
	Teacher Variables														
Variables	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_1	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_6	-	-	-	-	-	*	-	**	-	-	-	-	-	-	-
P_7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_8	****	*	-	**	*	****	*	-	-	-	-	-	-	-	-
P_9	*****	**	**	**	****	****	**	***	**	**	*	-	-	-	*
P_{10}	***	**	***	*	-	**	-	-	-	-	-	***	****	**	-
P_{11}	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$; ***** $p < .0001$

Table 66

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Analyses of Shift in Relationships between Class Means of Pupils' Attitudes and Beginning Teachers' Attitudes
(N = 64)

Pupil	Hypothesis Three					Hypothesis Four					Hypothesis Five				
	Teacher Variables														
Variables	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	-	-	-	-	*	-	-	-	-	*	-	-	-	-	-
P_1	**	-	-	-	-	-	-	-	-	-	**	-	-	-	-
P_2	***	-	-	-	-	-	-	-	-	**	**	-	-	-	-
P_3	****	*	-	-	-	*	*	-	-	-	*	-	-	-	-
P_4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_7	-	-	-	-	-	**	-	-	-	-	-	-	-	-	-
P_8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_9	*****	**	**	***	***	****	-	-	**	****	**	*	-	-	-
P_{10}	-	-	-	-	**	-	-	-	-	-	-	-	-	-	-
P_{11}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$; ***** $p < .0001$

Table 67

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Analysis of Shift in Relationships between Class Means of Pupils' Attitudes and Attitudes of Teachers with 2-8 Years' Experience
(N = 67)

Pupil	Hypothesis Three					Hypothesis Four					Hypothesis Five				
	Teacher Variables														
Variables	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_2	-	***	-	-	-	-	-	-	-	-	-	**	-	*	-
P_3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(*)
P_4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_5	-	*	-	*	-	-	-	-	-	-	-	-	-	-	-
P_6	-	*	***	-	-	-	**	-	-	-	**	-	****	-	-
P_7	**	***	**	-	-	-	-	-	-	-	**	***	**	-	-
P_8	-	-	*	-	-	-	**	-	-	-	-	-	**	-	-
P_9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_{10}	-	****	***	*	-	-	-	-	-	-	-	**	***	-	-
P_{11}	-	-	-	-	(*)	-	-	-	-	-	-	-	-	-	-

* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$

Parentheses around asterisks indicate results where pupils dominate in direction of influence.

Table 68

Summary of Chi-Square Results for Hypotheses Three, Four, and Five from Analysis of Shift in Relationships between Class Means of Pupils' Attitudes and Attitudes of Teachers with 9-46 Years' Experience
(N = 81)

Pupil	Hypothesis Three					Hypothesis Four					Hypothesis Five				
	Teacher Variables														
Variables	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C	T_0	T_1	T_2	T_3	C
P_0	-	**	-	-	-	-	-	-	-	(*)	-	***	-	-	-
P_1	-	**	-	-	**	-	-	-	**	-	-	****	-	-	-
P_2	-	**	-	**	-	-	-	-	-	-	-	*	-	*	-
P_3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P_4	-	****	-	**	-	-	***	-	-	-	-	-	-	*	-
P_5	-	*****	-	-	-	-	-	-	-	-	-	*****	-	-	-
P_6	-	*****	-	-	**	-	-	(**)	-	-	-	**	-	-	-
P_7	****	*****	-	*	-	-	*	-	*	-	****	****	-	-	-
P_8	***	*****	-	-	-	-	-	-	-	-	*	*****	-	-	-
P_9	****	****	-	****	-	*	**	-	-	-	*	*	-	**	-
P_{10}	****	*****	-	**	-	***	***	-	-	-	*	****	-	**	-
P_{11}	-	****	-	-	**	-	-	(****)	-	*	-	**	-	-	-

* $p < .05$; ** $p < .02$; *** $p < .01$; **** $p < .001$; ***** $p < .0001$

Parentheses around asterisks indicate results where pupils dominate in direction of influence.

especially with total MTAI and Factor I scores. The sub-samples with all middle-class pupils, the beginning teachers, and the teachers of 2-8 years' experience showed more interactive influence operating between teacher and pupils.

Tables 63-68, therefore, indicate evidence of strong teacher influence; the greatest differences in frequencies are those for Hypothesis Five where teacher influence toward incongruity is hypothesized to be greater than pupil influence toward incongruity. Such results corroborate those results found with the frequencies-of-shift technique for the same groups' attitude relationships.

Results for Sub-Samples by Teachers' Years of Experience. We can find comparable results for the sub-samples established by teachers' years of experience by examining results by the frequencies-of-shift and analysis-of-shift techniques in Tables 56-58 and 66-68 respectively.

In results for the beginning teachers (Tables 56 and 66), the attitude relationships with significant chi squares are not identical with the two techniques. With the analysis-of-shift technique, no significant outcomes favor pupils as in results with the other method. With pupils' affective attitudes, P_1, P_2, and P_3 (See Tables 1, 2, and 3), beginning teachers tend to cause pupil shift in an incongruent direction. With pupils' perceptions of teacher's merit in individualizing instruction, beginning teachers appear to predominate quite strongly, especially in a congruent direction, and reflect perhaps use of modern methods of teaching recently gained in teacher education institutions. The results with the frequencies-of-shift technique suggest that the direction of influence is from teacher to pupils for beginning teachers-class pairs showing greatest activity in shift of pupils' affective attitudes. On the other hand, the teacher-class pairs shifting most tend to shift in favor of pupils in relationships with pupils' disciplinary (P_6) and motivational (P_{11})' attitudes (See Tables 6 and 11). Results of the analysis-of-shift method show that considering all classes with beginning teachers, teacher influence or pupil influence is not significantly greater than the other in P_6 and P_{11}.

In Tables 57 and 67, we find results from both techniques for the sub-sample with teachers of 2-8 years' experience. In the frequencies-of-shift results, teacher influence predominates over pupils' affective attitude of liking their teacher (P_2) and pupils' motivational perceptions (P_{10}) in both positive and negative directions. In the analysis-of-shift results, teacher influence over P_2 and P_{10} attitudes is significantly found only in the incongruent direction. Both methods show, with teacher-class pairs related on MTAI Factor I and pupils' disciplinary P_6 attitude, shift is mainly in a congruent direction from pre- to posttest. Analysis-of-shift results show for their experience group that the pupils' disciplinary attitudes (P_6 and P_7) shift significantly in the incongruent direction with total MTAI and Factor II scores. For P_7, unlike P_6, shift is in the incongruent direction in attitude relationships with MTAI Factor I scores.

In both sets of results, instances of pupil influence dominating over teacher influence can be found.

Tables 58 and 68 show both methods' results for the 9-46 years-of-experience sub-sample. The MTAI Factor I measures in relationship with pupils' measures predominates quite strongly over pupil attitudes. The most significant chi squares result from the analysis-of shift technique, which shows considerable incongruent teacher influence, especially in the relationships of teachers' total MTAI and Factor I measures and pupils' affective (P_1 and P_2), cognitive (P_5), disciplinary (P_7), innovative (P_8 and P_9), and motivational (P_{10}) attitudes. Frequencies-of-shift results show that the most experienced teachers' class pairs are shifting in favor of teacher influence, but primarily in the congruent direction.

With older teachers' MTAI Factor II and "My Class" scores, significant analysis-of-shift results favor congruent pupil influence with attitude measures: P_0, P_6, and P_{11}. In these two teacher measures concerned with favorable vs. unfavorable opinions or evaluations about children, it is interesting to note that pupils' total, disciplinary, and motivational attitudes should relate in their favor.

Thus, for the experienced teachers and more so as experience increases, teacher-class pairs shift at significant rates in favor of teacher influence mainly in the incongruent direction. The more experienced teachers' MTAI Factor I scores, "Traditionalistic vs. Modern Beliefs about Child Control," is outstanding in producing significant results showing teachers' incongruent influence. Teachers with 2-8 years' experience and those with 9-46 years' experience have differing results in relationships with MTAI Factor II scores.

Relationships with beginning teacher-class pairs contrast with experienced teacher-class pairs in that beginning teachers' MTAI factor scores do not produce the overwhelming one-sided results favoring teacher influence. Beginning teachers tend to predominate over pupils in relationships with total MTAI scores which successfully cause pupils' affective attitudes to shift incongruently and innovative attitudes to shift in both directions. We can see at this point that the preliminary questions of teachers' attitudes as cause or effect in relationship with pupils' attitudes on the factor of teaching experience were naive. We can see that influence operates in congruent and incongruent directions, that the significant attitudes of teachers and pupils toward the other must be identified, measured reliably, and specified in any discussion of their relationship and that very probably many other factors other than teachers' experience help determine teacher-pupil attitude relationships.

Differences Between Means

Two-way analyses of variance, with classification by pupils' social class and teachers' years of experience, were made for all measures. Highly significant differences were found between social-class groups.

Table 69 presents a summary of results and Tables 70 and 71 present more detailed information on analyses of variance for T_0 and P_0.

Significant F-ratios were found for all teachers' scores differentiated by pupils' social class, except pretest scores from the "My Class" inventory, e.g., F for $C = 1.64$, $p < .20$; F for $C' = 9.81$, $p < .002$. Significant F-ratios were found for both pre- and posttest total "About My teacher" (P_0) scores by social class.

Lower-class pupils were generally less favorable toward their teachers on posttest measures than middle-class pupils; but in pre- and posttest affective attitudes (P_1 and P_2) and posttest measures of P_3, no significant variance was found. Also, in perception of teachers' explaining ability (P_5), their own orderliness (P_6), teachers' merit in disciplining behavior (P_7), and teachers' motivating merit (P_{10}), lower- and middle-class pupils' scores were equivalent.

Some highly significant differences between means for sub-samples classified by pupils' social class and teachers' varying years of teaching experience were found. With total T_0 and P_0: pre- and posttest means were not significant for beginning teachers; pretest means for T_0 and both pre- and posttest P_0 means differed significantly, but not T_0' for teachers with 2-8 years' experience; pretest means for P_0 and both T_0 means differed significantly, but not P_0' for teachers with 9+ years' experience. Also, for teachers of middle-class pupils with 9+ years' experience, $\bar{T}_1 = 5.84$, $\bar{P}_{11}' = 3.84$; for teachers of lower-class pupils with 9+ years' experience, $\bar{T}_1 = .41$, $\bar{P}_{11}' = 2.84$. No significant variance due to interaction between social class and teaching experience was found. Thus, by such classification, beginning teachers' and their pupils' attitudes are not significantly different, but experienced teachers' attitudes, especially teachers with 9+ years, and their pupils' attitudes, especially pupils of teachers with 2-8 years' experience, differ significantly.

Main Conclusions

In short, teachers seem to influence their pupils much more in schools located in lower-class neighborhoods than in middle-class schools. In lower-class schools, teachers' less positive attitudes of warmth, permissiveness, and favorability toward pupils tended to make pupils' attitudes toward their teacher become more unfavorable, especially in pupils' perceptions of teachers' explaining ability, use of modern teaching equipment and individualized instruction, and teachers' ability to inspire and motivate pupils to be interested in learning. In middle-class schools, the teachers' more positive attitudes made less difference, i.e., had less effect on pupils' attitudes. These results can be understood as suggesting that lower-class pupils have less potent sources of adult warmth and support at home and hence depend more on, and are influenced by, such adult influence at school. The more vulnerable self-concept, or weaker ego of the lower-class pupils makes him more open to his teacher's

Table 69

Summary of Results for Analyses of Variance of All Variables
Classified by Pupils' Social Class and Teachers' Years of Experience
(Social class - A X Teachers' years of experience - B)

	A	B		A	B
T_0	.0005	-	T_0'	.004	-
T_1	.004	-	T_1'	.05	-
T_2	.006	.01	T_2'	.0003	-
T_3	.001	-	T_3'	.0009	.04
C	-	-	C'	.002	-
P_0	.0025	.02	P_0'	.005	-
P_1	-	.01	P_1'	-	-
P_2	-	.01	P_2'	-	-
P_3	.02	.003	P_3'	-	-
P_4	.0000	.005	P_4'	.0002	-
P_5	-	.07	P_5'	-	-
P_6	-	-	P_6'	-	-
P_7	-	-	P_7'	-	-
P_8	-	-	P_8'	.009	-
P_9	-	-	P_9'	.0002	-
P_{10}	-	-	P_{10}'	-	-
P_{11}	.0000	-	P_{11}'	.0000	-

Table 70

Analysis of Variance Results for Teachers' Total MTAI Measures
Classified by Pupils' Social Class and Teachers' Years of Experience

Pretest (T_0)

Pupils' Social Class	Teachers' Years of Experience				Source of Variation	Sum of Squares	df	F ratio	p
	0-1	2-8	9+	Total					
Middle Class	43.36	48.00	38.75	43.37	Rows	14,456.89	1	13.85	.0005
					Columns	1,495.76	2	1.43	.2396
Lower Class	27.76	30.94	21.86	26.85	Interaction	11.25	2	.01	.9900
					Within Cells	1,043.90	206		
Total	35.56	39.47	30.30		Total	1,101.97	211		

Posttest (T_0')

Pupils' Social Class	Teachers' Years of Experience				Source of Variation	Sum of Squares	df	F ratio	p
	0-1	2-8	9+	Total					
Middle Class	36.21	43.71	44.56	41.49	Rows	12,783.88	1	8.80	.0037
					Columns	1,103.76	2	.75	.5267
Lower Class	30.36	32.06	15.47	25.96	Interaction	2,586.20	2	1.78	.1691
					Within Cells	1,452.95	206		
Total	33.28	37.88	30.01		Total	1,514.08	211		

All means, totals, and F ratios rounded off to second decimal place.

Table 71

Analysis of Variance Results for Pupils' Total "About My Teacher" Measures Classified by Pupils' Social Class and Teachers' Years of Experience

Pretest (P_0)

Pupils' Social Class	Teachers' Years of Experience			
	0-1	2-8	9+	Total
Middle Class	128.39	129.05	125.23	127.55
Lower Class	126.20	121.84	117.21	121.75
Total	127.30	125.44	121.22	

Source of Variation	Sum of Squares	df	F ratio	p
Rows	1,784.23	1	9.71	.0025
Columns	686.00	2	3.73	.0248
Interaction	175.63	2	.96	.6118
Within Cells	186.76	206		
Total	196.03	211		

Posttest (P_0')

Pupils' Social Class	Teachers' Years of Experience			
	0-1	2-8	9+	Total
Middle Class	126.10	129.84	124.04	126.66
Lower Class	121.62	119.64	117.86	119.71
Total	123.86	124.74	120.95	

Source of Variation	Sum of Squares	df	F ratio	p
Rows	2,563.76	1	8.09	.0051
Columns	278.57	2	.88	.5803
Interaction	152.24	2	.48	.6252
Within Cells	361.99	206		
Total	325.71	211		

All means, totals, and F ratios rounded off to second decimal place.

influence as a determiner of his attitude toward his teacher. The better-established orientation of the middle-class child toward adults in general, both parents and teachers, makes his attitudes toward his teacher more stable and less susceptible to the influence of the particular teacher he happens to have in any given year. The more negative attitudes of teachers with 9+ years' experience working with lower-class pupils and their incongruent attitude relationships with pupils raise serious questions concerning such teachers' placement and length of service with lower-class pupils. The great contrast between attitude scores and attitude relationships for teachers of 9+ years of experience with pupils of differing social classes emphasize the importance of considering the characteristics and behaviors of both teacher and pupils in classroom interaction.

From this study's results, we strongly suspect that objective classroom observations, such as Flanders' (1965) interaction analysis technique, would find that lower-class pupils tend to find themselves taught by dominative teachers who utilize more coercive and direct approaches in their attempts to influence pupils. In classrooms with middle-class pupils, objective observations would probably find more teachers who tend to be integrative and utilize stimulating, indirect approaches in their efforts to influence pupils. Certainly the factors involved in recruitment and retention of teachers in schools require further study in relationship to teacher-pupil attitudes. It is generally known that schools in middle-class neighborhoods provide the favorable teacher incentives in salaries, equipment, supplies, attractive surroundings, and pupils and parents who are not "social problems" and "culturally different" that the schools in lower-class neighborhoods cannot provide. Thus, on the criterion of teachers' affective attitudes toward children and teaching as a career, lower-class pupils are typically taught by lower-scoring teachers. In response to any suggestion that interaction with lower-class pupils caused teachers' attitudes to shift negatively, Tables 17-19 show contrasting attitudes for beginning teachers of lower- and middle-class pupils.

The practical significance of these findings and interpretations is that the teacher's attitudes of warmth and permissiveness are even more important to lower-class children than to middle-class children. Zigler and Kanzen (1962) found a significant interaction between the type of reinforcer used and the social class of the S. The praise reinforcers, such as "good" and "fine," were more reinforcing than the correct reinforcers, such as "correct" and "right," with lower-class children, while the correct reinforcers were more effective than the praise reinforcers with middle-class children. The investigators suggested that the concept of developmentally changing reinforcer hierarchy (e.g., Beller, 1955) can be applied to explain such results.

Insofar as such teacher attitudes can be brought into the classroom through selection and training procedures, the effort should especially be made to place the "better" teachers in schools located in lower-class neighborhoods. Perhaps the problem of adequately staffing schools in lower-class neighborhoods is of such magnitude that only a concerted program, such as the proposed National Teacher Corps, can begin to help school districts meet the necessary special teacher selection, training, and incentives required.

This study found the complexity of attitude relationships between teachers and pupils to be greater than expected. We found strong support for theories from the social psychology of education which consider classroom outcomes to be mainly determined by classroom interpersonal behavior events to which the major participants, teachers and pupils, bring their behaviors and characteristics. The worker in education who assumes uniformity in teachers' and pupils' behaviors and characteristics relative to development and research with administrative, curricular, and instructional concerns may have thrown away the baby with the water. To illustrate the importance of considering social interaction in classrooms, Figure 3 shows the diverse teacher-class shifts in attitude relationships of T_0 and P_0 from pre- to posttest occasion. This study's most valuable contribution may lie in its demonstration of the complexity involved in interpersonal relations. More concise and comprehensive theories of classroom interaction and instructional techniques need to be developed and tested. Perhaps when we have perfected the necessary complex theoretical systems and attained greater knowledge of what determines a given sequence of classroom behavior, we will be better able to screen and train professional workers who will in turn be better prepared to bring about desired educational outcomes.

To more adequately ascertain the direction and source of influence than we originally planned, we developed new analytic techniques. With the new techniques, we found the important contribution of incongruent influence in interpersonal relationships, especially with the most experienced teachers of lower-class pupils. Beginning teachers and experienced teachers differed in attitude relationships with pupils, but the relationships with teachers of 2-8 years' experience also differed from those with teachers of 9+ years' experience. We found that the factor of pupils' social class provides contrasting results. More refined analyses already underway based on factors, such as principals' attitudes toward children and schooling, grade level of classes, pupils' sex and ethnic background, and teachers' sex and ethnic background, will no doubt show greater distinctions between teacher and pupil groups.

With factor analyses, we found more dimensions of pupil and teacher attitudes. The results of the factor analyses provided more attitude relationships to study. Recently, a project which has gone through many difficulties in computer work was successfully accomplished when a factor analysis of the MTAI's 150 variables for 368 subjects was completed with the recently installed CDC 6600 computer at The University of Texas. Unfortunately, its results were received too late for this report. The understanding and usefulness of the MTAI may be enhanced if the extracted factors, as we expect, do provide more homogeneous and unidimensional attitude measures.

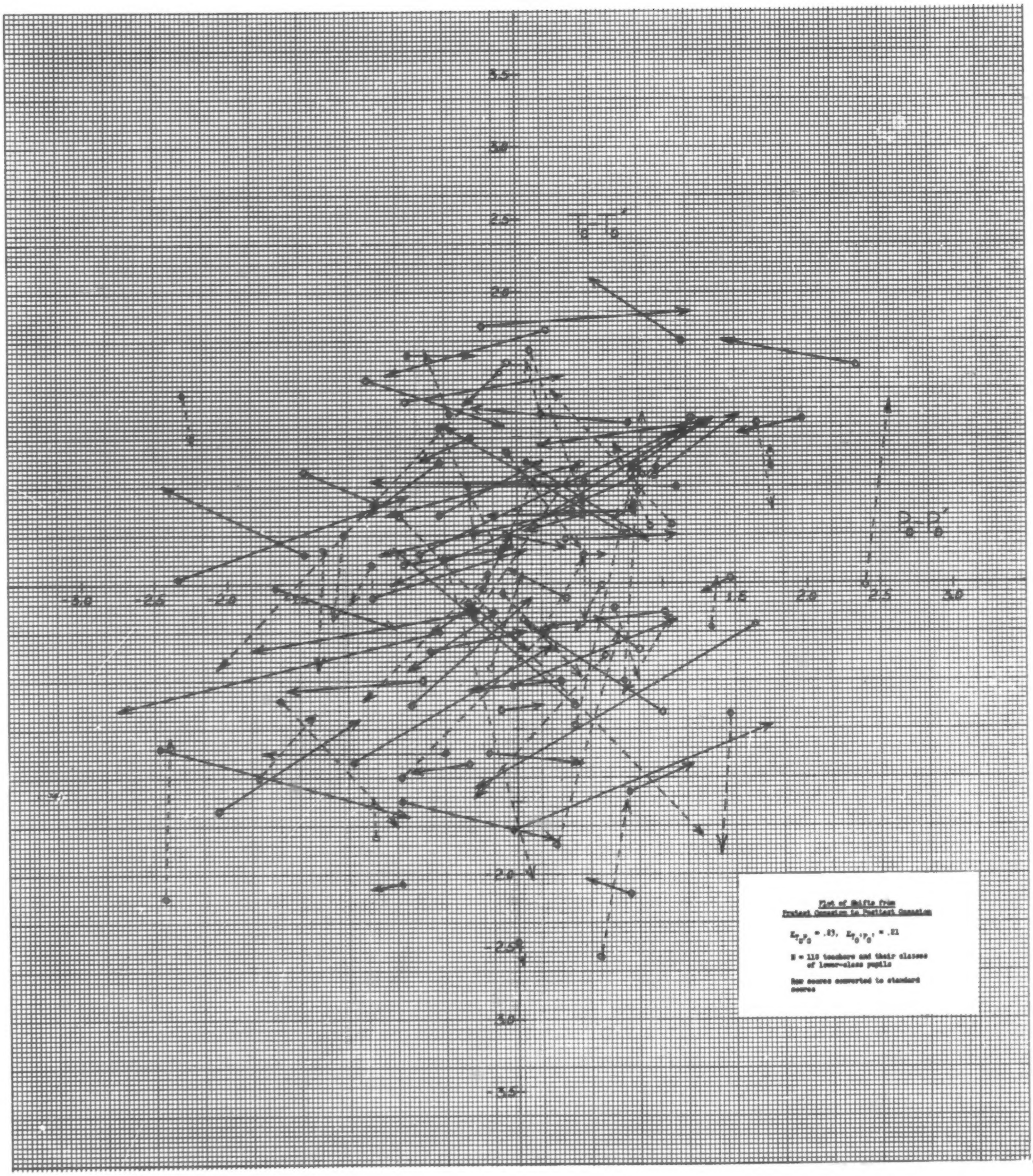
3.5
3.0
2.5
$T_O - T_O'$
2.0
$P_O - P_O'$
-3.0
-2.5
-2.0
1.5
2.0
2.5
3.0
-2.0
-2.5
-3.0
-3.5
Plot of Shifts from Pretest Occasion to Posttest Occasion
$r_{T_O P_O} = .83$, $r_{T_O' P_O'} = .21$
N = 110 teachers and their classes of lower-class pupils
Raw scores converted to standard scores

Figure 3.

More adequate theory and research methods may arise from a combination of differing theoretical and research approaches now in development. Amidon & Simon (1965, p. 136) wrote in their review of research with observational methods that while such approaches show "a relationship between teacher personality and teacher-pupil interaction patterns, there seemed to be uncertainties about the exact nature of this relationship." The reviewers' suggestion that "additional theoretically oriented research" is necessary may be fulfilled by approaches which are mainly concerned with the study of covert behavior, such as the present study. Such a combination of observational approaches to provide data on overt classroom behavior with other approaches aimed simultaneously to provide data on covert behavior is feasible. Possibilities for multidimensional analysis of classroom interaction patterns by a combination of approaches can be sensed when one considers what observational data would reveal in relationship to the quantity of data obtained for this study.

New theoretical and research approaches may be developed, but what counts is their ultimate implementation in classrooms where they will be of value. The papers presented by Gage, Jackson, and Kliebard in a recent ASCD-NEA (1966) monograph reporting what researchers are investigating in classrooms, how they conduct their research, and what the authors think should be given more attention in the teaching-learning process exemplify the priority researchers are giving to the description of rather than the prescription of classroom behavior. The three writers emphasized the need to better understand, predict, and control teacher-pupil interaction in order to maximize the outcomes we desire from classroom effects. In reading the monograph, one gets the uneasy feeling that what is discussed must be decades ahead of the common American classroom; for with more simplex matters, there is a time lag of about 40 to 50 years for proven innovations to find their way into common practice among teachers.

If teachers influence pupils more than pupils influence teachers, as this study indicates, then the deliberate, effective manner in which teachers influence pupils and understanding of pupils' allowing or not allowing themselves to be influenced in the hundreds of teacher-pupil transactions each school day require an almost revolutionary revision of teacher recruitment, selection, and preparatory programs. Interesting is the observation that the role of classroom teacher, perhaps the enrollment in education courses, or both, do not appeal to many of our brightest college undergraduates. Yet many of these bright young people upon graduation will join a government program to teach --- with no benefit of college work in education prior to their joining --- foreign children for two years in the underdeveloped corners of the world; but ironically, most will return never to teach children in their own country. Such behavior, however, is characteristic of the American public's great belief in the value of education contradicted by its view of teaching as requiring only semiprofessional status and rewards.

All of this, of course, is not to suggest that all of today's teachers as a rule are of poor quality. Considering the rewards and social status given to teachers past and present, it is not hard to see that what American teachers have accomplished for their pupils and the country have been remarkable. I would suggest that, as can be seen graphically in Figure 3, we may need to decide whether such diverse differences in teacher-pupil interaction as found by this study are beneficial to educational goals. Teachers themselves would probably agree that the general level of professional teaching should be and can be raised.

In the next 20 or 30 years, I hope to see develop, as was accomplished earlier in this century for teachers' affective merit, greater emphasis on teachers' intellectual ability in preparation and work with students. This wish will not come about until the typical education student is truly seeking a professional career, similar to today's students in law and medicine, and teacher education programs in colleges and universities are more than undergraduate programs. Also, the nature of teachers' work in schools must become more systematically planned and oriented toward learning outcomes. Perhaps in two or three decades we will have instituted administrative systems which differentiate between teachers' professional backgrounds, preparation, skills, commitment to teaching, and personalities sufficiently to provide different classifications of teachers, such as Master Teacher in the team teaching situation.

I would like to see a basic four or five year program developed for preliminary accreditation, perhaps called Novice Teacher and graduate programs for Senior Teacher and Master Teacher. Senior Teachers could earn such status by demonstrating their teaching competency through several years of actual classroom work and continuing advanced studies to earn a master's degree. The status of Master Teacher would require preparation equivalent to that for doctorates today, but with more "clinical" work related to in-depth teaching-learning processes and strategies, less to pedantic exercises. With such professional levels in preparation, abilities, and status, we can provide a basic program for highly select candidates to become Novice Teachers, analogous to today's nurses, and then graduate programs for the most qualified to become Senior and Master Teachers, something like M.D.'s, in medicine.

When significant improvements in teaching come about, the main concern of teacher education centers will be more determined by qualitative rather than quantitative objectives. Certainly the problems associated with the continuing shortage of sufficient numbers of teachers and retention of those now teaching are real, especially when administrative systems in typical use today require that there be _a_ teacher per class. Shortages of qualified persons available create serious problems in other professional fields too; but medical schools and state examination boards do not compromise quality for quantity because we need more doctors. As seen in this study's data, the great distribution of teacher responses from negative to positive attitudes toward children and teaching as a career suggest that there is little consistency in even the more traditional criterion of teacher effectiveness, that is, affective merit. What competency and uniform quality in teachers' cognitive merit, in explaining ability, in individualizing instruction, and in inspiring pupils to study and learn can we find in classrooms today? A recent report (Yee, 1966) suggests that the answer may well be disappointing.

To improve their teaching competence, perhaps helpful is the implication of this study that teachers can gain much valuable information concerning themselves, their pupils, and life in their classrooms by obtaining more feedback information from their pupils. (Also see Gage, Runkel, & Chatterjee, 1960.) Pupils may not be competent in evaluating curricular plans and instructional methods; nevertheless, their perceptions of teachers and school in general are always present and are real to them. The "About My Teacher" inventory proved to be a highly versatile and reliable measure of pupils' attitudes toward their teacher in this study. The pupil inventory deserves further use and development to ascertain its possible value in providing feedback to teachers.

The promise of programmed learning and computer-assisted instructional techniques in supplementing and surpassing classroom instruction normal today may well become the necessary revolutionary factor to significantly affect administrative systems and the general level of professional teaching. Advocates expect such techniques integrally systemized into instructional programs can provide individualization of instruction worthy of the term, immediate feedback to pupils, and perfected sequential teaching-learning patterns that would be simple to replicate and use almost anywhere and at any time.

We have worked hard perfecting theories and programs in teacher education on the premise that people who demonstrate warm-sympathetic-supportive attitudes toward children and teaching in general and possess at least average intelligence and general abilities can learn to be effective teachers. However, a system of education based primarily on face-to-face, on-spot interaction between a teacher and about 30 different pupils requires tremendous qualities in a teacher. Viewing teaching-learning processes from the interactional point of view, we may expect far too much of teachers in being capable of developing and maintaining maximal positive effects for each individual pupil. Programmed instruction, especially with computerized systems, can improve teacher-pupil interaction when specific, sequential interaction is most crucial in learning and most difficult, if not impossible, for a teacher to provide for each individual pupil spontaneously. With such technological advances, teachers will not be replaced by "teaching machines." But the qualitative aspects of teaching and the efficiency and consistency of positive teacher effects can be significantly enhanced. However, given no changes in classrooms other than teachers' greater understanding and more effective prediction and control of interactive processes with pupils (and perhaps the reverse too), higher levels of rapport, thinking, and learning should be consistently achieved in classrooms. In support of this suggestion, Taba, Levine, & Elzey (1964) reported successful results in training teachers in utilization of analyses given their teaching strategies, i.e., teacher-pupil cognitive interaction, and in helping pupils develop cognitive skills.

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Appendix A

INSTRUCTIONS

Your responses to this instrument will indicate your impressions of your class at this time. Please make your judgments on the basis of what these descriptive scales mean to you.

Here is how you are to use these scales:

If you feel that your class is very closely related to one end of the scale, you should place your check-mark as follows:

fair __X__:_____:_____:_____:_____:_____:_____ unfair

or

fair _____:_____:_____:_____:_____:_____:__X__ unfair

If you feel your class is quite closely related to one or the other end of the scale (but not extremely), you should place your check-mark as follows:

fair _____:__X__:_____:_____:_____:_____:_____ unfair

or

fair _____:_____:_____:_____:_____:__X__:_____ unfair

If your class seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

fair _____:_____:__X__:_____:_____:_____:_____ unfair

or

fair _____:_____:_____:_____:__X__:_____:_____ unfair

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of your class at this time. If you consider the class to be neutral on the scale, both sides of the scale equally associated, or if the scale is completely irrelevant, then you should place your check-mark in the middle space.

IMPORTANT: (1) Place your check-marks in the middle of spaces, not on the boundaries:

THIS NOT THIS

_____:__X__:_____:_____:_____X_____:

(2) Be sure you check every scale. Do not omit any.

(3) Only put one check-mark on a single scale.

(4) Make each item a separate and independent judgment. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that is desired.

T#__________

MY CLASS

worthless _____:_____:_____:_____:_____:_____:_____ valuable

good _____:_____:_____:_____:_____:_____:_____ bad

positive _____:_____:_____:_____:_____:_____:_____ negative

pleasant _____:_____:_____:_____:_____:_____:_____ unpleasant

happy _____:_____:_____:_____:_____:_____:_____ sad

dishonest _____:_____:_____:_____:_____:_____:_____ honest

fair _____:_____:_____:_____:_____:_____:_____ unfair

healthy _____:_____:_____:_____:_____:_____:_____ sick

hazy _____:_____:_____:_____:_____:_____:_____ clear

optimistic _____:_____:_____:_____:_____:_____:_____ pessimistic

sweet _____:_____:_____:_____:_____:_____:_____ sour

ungrateful _____:_____:_____:_____:_____:_____:_____ grateful

willing _____:_____:_____:_____:_____:_____:_____ unwilling

perfect _____:_____:_____:_____:_____:_____:_____ imperfect

bottom _____:_____:_____:_____:_____:_____:_____ top

educated _____:_____:_____:_____:_____:_____:_____ ignorant

foolish _____:_____:_____:_____:_____:_____:_____ wise

Appendix B

boy___ girl___ T#______

P#______

ABOUT MY TEACHER

Here are some questions about your teacher. You will answer them by drawing a circle around the "Yes," "No," or "?" depending upon how you feel about the question.

Please answer the questions honestly. None of the teachers or the principal will ever see this paper or know how you answered the questions. No one will ever know how you answered them, for you are asked not to write your name on the paper.

In answering the questions think of the teacher whose name is below:

Name of teacher: ________________________________.

You will almost always be able to answer either "Yes" or "No." However, if you do not know how to answer a question, draw a circle around the question mark (?).

1. Do you like your teacher? . . . . YES NO ?

2. Do you wish your teacher would use more examples to make the lesson clearer? . . . . YES NO ?

3. Do the children behave well for your teacher? . . . . YES NO ?

4. Does your teacher do things in the same old way all the time? . . . YES NO ?

5. Does your teacher make you want to go to the library? . . . . YES NO ?

6. Is your teacher usually kind to you? . . . . YES NO ?

7. Does your teacher usually clear up the things that puzzle you? . . YES NO ?

8. Do some pupils break the class rules a lot? . . . . YES NO ?

9. Would your teacher object if you suggested a better way to do something that is going on in the classroom? . . . . YES NO ?

10. Does your teacher make the school work dull and uninteresting? . . YES NO ?

11. Does your teacher speak to you when she meets you on the street? . YES NO ?

12. Does your teacher sometimes go on to harder work before you understand the last part? . . . . YES NO ?

13. Does your teacher notice when children are "fooling around" in class? . . . . YES NO ?

14. Have you used a teaching machine this year? . . . . YES NO ?

15. Does your teacher make you feel like doing extra work outside class? . . . . YES NO ?

16. Do you dislike going to your teacher with your problems? . . . . . . YES NO ?

17. When you ask your teacher a question, do you often just get more confused? . . . . YES NO ?

18. Does your teacher often have to raise her voice to be heard? . . . . YES NO ?

19. Do all the pupils in the class use the same books for the same subjects (except in "Reading")? . . . . YES NO ?

20. Does your teacher make you want to spend extra time on your work? . . . . YES NO ?

21. Is your teacher easily annoyed or bothered? . . . . YES NO ?

22. Does your teacher make difficult things easy to understand? . . . . YES NO ?

23. Does your class sometimes get in an "uproar"? . . . . YES NO ?

24. Does the teacher sometimes let you work on something no one else is doing? . . . . YES NO ?

25. Do you sometimes do more school work than you have to, just because your teacher makes it fun to do so? . . . . YES NO ?

26. Does your teacher make fun of some pupils? . . . . YES NO ?

27. Does your teacher explain your lessons clearly? . . . . YES NO ?

28. Is your room quiet and orderly even when the pupils work together? . . . . YES NO ?

29. Do you always study the same subjects at the same time, on a daily or weekly schedule? . . . . YES NO ?

30. Does your teacher usually make you want to find answers to the questions you have about school subjects? . . . . YES NO ?

31. Does your teacher break her promises? . . . . YES NO ?

32. When the teacher has finished explaining a subject, do you often feel you still do not understand it? . . . . YES NO ?

33. Does your teacher sometimes give up trying to keep the class quiet? . . . . YES NO ?

34. Do you wish you could do more work in groups? . . . . YES NO ?

35. Does your teacher make you feel like learning a lot on your own? . . . . YES NO ?

36. Do you think your teacher understands people your age? . . . . YES NO ?

37. Do you often find that the teacher is confusing you? . . . . YES NO ?

38. Does your teacher keep the pupils from running wild when the class is having a party? . . . . YES NO ?

39. Does your teacher sometimes ask another teacher to come in and help explain something to the class? . . . . YES NO ?

40. Does your teacher often get you so interested in school work that you read or talk about it outside the school? . . . . YES NO ?

41. Is your teacher often cross? . . . . YES NO ?

42. Is Arithmetic harder than usual to understand this term? . . . . . . YES NO ?

43. Do other pupils bother you when you are trying to do your school work? . . . . YES NO ?

44. Do you almost never have a class period when you may do any sort of work you like? . . . . YES NO ?

45. Does your teacher make you want to do good school work? . . . . YES NO ?

46. Do the other children like your teacher? . . . . YES NO ?

47. Do the diagrams your teacher uses help you to understand the subject? . . . . YES NO ?

48. Does your teacher often keep pupils in at recess or after school? . . . . YES NO ?

49. Does your class go on field trips that help you understand what you are studying? . . . . YES NO ?

50. When you are studying a subject in school, and your teacher wants you to look up more information about it, do you still dislike doing so? . . . . YES NO ?

51. Does your teacher seem to like children? . . . . YES NO ?

52. When your teacher gives directions, do you often have trouble knowing what to do? . . . . YES NO ?

53. Are some pupils always showing off in class? . . . . YES NO ?

54. Do you help plan what the class is going to do? . . . . YES NO ?

55. Does your teacher make you feel like working real hard at your school work? . . . . YES NO ?

56. Is your teacher fun to be with? . . . . YES NO ?

57. Do you often have difficulty understanding what your teacher is talking about? . . . . YES NO ?

58. Do other teachers ever have to come in and settle the class down, when your teacher is there? . . . . YES NO ?

59. Suppose you wanted to start a class newspaper. Would your teacher insist that you work on it outside school time? . . . . YES NO ?

60. Does your teacher make you feel like reading in books and magazines in addition to reading the textbook? . . . . YES NO ?

61. Is your teacher often in a bad mood? . . . . YES NO ?

62. Can your teacher explain what you do not understand? . . . . YES NO ?

63. Does your teacher succeed in keeping the pupils under control? . . . . YES NO ?

64. Has your teacher taught you anything about Communism or Fascism? . . . . YES NO ?

65. Do you often feel like loafing in class? . . . . YES NO ?

66. Does your teacher have "pets" or favorites among the pupils? . . . . YES NO ?

67. Does your teacher make sure everybody understands the lesson? . . . . YES NO ?

68. Is your class quiet when the teacher leaves the room? . . . . YES NO ?

69. Do you wish you sometimes got a chance to talk to the whole class? . . . . YES NO ?

70. When the teacher has finished telling about something, do you often feel so interested that you want to find out a lot more about it? . . . . YES NO ?

71. Is it hard to "get along" with your teacher? . . . . YES NO ?

72. Does your teacher give assignments that help you learn? . . . . . . YES NO ?

73. Is your teacher able to keep the children quiet in the classroom? . . . . YES NO ?

74. Does your teacher often show a movie to explain something you are studying? . . . . YES NO ?

75. Do you dislike doing extra school work for your teacher? . . . . . . YES NO ?

76. Do you think most of the pupils like your teacher? . . . . YES NO ?

77. Does your teacher explain the assignments clearly? . . . . YES NO ?

78. Does your teacher often have to send pupils to the office because they have misbehaved? . . . . YES NO ?

79. Do visitors from outside the school come in to talk to the class? . . . . YES NO ?

80. Is your school work less interesting this year than it was last year? . . . . YES NO ?

81. Are you afraid to ask your teacher for help? . . . . YES NO ?

82. Does the teacher use words that you understand? . . . . YES NO ?

83. When the class has been outside, does the teacher get the pupils in and settled down easily? . . . . YES NO ?

84. Does your teacher seem to think the answer to a problem is more important than how you got it? YES NO ?

85. Do you have to do lots of things in school that you don't want to do? YES NO ?

86. Is your teacher interested in the things you do outside school? YES NO ?

87. Is it sometimes hard to understand your teacher's explanations? YES NO ?

88. Are the children usually quiet in your room? YES NO ?

89. Does your teacher ever use a machine that shows pictures or diagrams on the wall when she is explaining things? YES NO ?

90. Is your teacher making school work less interesting for you this year? YES NO ?

91. Does your teacher sometimes get angry when something funny happens? YES NO ?

92. Do you feel that you are having trouble learning things this year? YES NO ?

93. Do the pupils in this class often play tricks on each other when the teacher is not looking? YES NO ?

94. Do all the pupils in the class use the same books at the same time? YES NO ?

95. Do you feel like not working so hard for your teacher? YES NO ?

96. Does your teacher sometimes take part in the children's games? YES NO ?

97. Do you usually understand what your teacher expects you to do? YES NO ?

98. Do the pupils "get away" with things that your teacher would not like, when the teacher is not looking? YES NO ?

99. Does your teacher often have you work in committees? YES NO ?

100. Are you sometimes discouraged from finding out more about the subjects your teacher explains in class? YES NO ?

101. CHECK THE ONE STATEMENT BELOW WHICH MOST NEARLY DESCRIBES YOUR GENERAL OPINION OF THIS TEACHER:

1. The best teacher I have ever had 1. ☐
2. Better than most teachers I have had 2. ☐
3. About the same as most teachers I have had 3. ☐
4. Not as good as most teachers I have had 4. ☐
5. The worst teacher I have ever had 5. ☐

Appendix C

DIRECTIONS FOR ADMINISTRATORS

YOU WILL BE ADMINISTERING INVENTORIES TO A TEACHER AND HER PUPILS. WHEN YOU ENTER THE CLASSROOM, INTRODUCE YOURSELF AND ALLOW THE TEACHER TO INTRODUCE YOU TO THE CLASS. THEN MENTION YOUR PURPOSE AS FOLLOWS: I suppose you are acquainted with what we will be doing today. If you are not, one of the enclosed sheets here will explain it in general. We certainly appreciate your cooperation in this research project and we hope that you will find it worthwhile. GIVE THE TEACHER A COPY OF THE MTAI WITH AN MTAI ANSWER SHEET, A COPY OF THE "MY CLASS" QUESTIONNAIRE, AND THE TEACHER INFORMATION SHEET TO THE TEACHER, SAYING: This will tell you about the project. If you will go to the teachers' room or some other spare room to fill this out, I will administer the pupil inventories. I believe the attached directions are self-explanatory. We will take about 45 minutes here. You may be through before then; if so, please wait until we finish here before entering the room. Do you have any questions? (PAUSE) O.K., we'll see you in about 45 minutes.

IT IS VERY IMPORTANT THAT THE PUPILS UNDERSTAND WHAT THEY ARE TO DO. FOR THIS REASON THE ADMINISTRATOR SHOULD FOLLOW PRECISELY AND IN DETAIL ALL THE INSTRUCTIONS GIVEN BELOW. BEFORE PASSING OUT ANY INVENTORIES, READ THE FOLLOWING TO THE STUDENTS: We are going to do something today that we don't usually do in schools. The teachers and principal will never know what any of you write today because we are not going to take your names. We are going to ask you to tell how you feel about your teacher and about the kind of teacher you like. We think this will help us in training teachers and in picking out the kind of teachers pupils like.

Please keep the papers face down on your desk until you are told to turn them over.

PASS OUT PUPIL INVENTORIES - AND THEN ASK: Does everyone have the papers now? (PAUSE) Is there anyone who needs a pencil? (PAUSE) If your pencil breaks, raise your hand and I will give you another one.

We have tried these questions out on boys and girls of your grade already. Some children have trouble answering some of the questions. Don't worry about this, because I am going to help anyone needing help.

SAY: We are going to ask you to answer some questions about teachers by drawing a circle around the words "Yes," "No" or "?" to tell us if it is true of your teacher.

Please turn the page to the title "About My Teacher." PAUSE TO SEE THAT EVERYONE HAS THE RIGHT PAGE. ASK PUPILS TO INDICATE BOY OR GIRL. READ THE DIRECTIONS AND EMPHASIZE NOT TO WRITE NAME. WHEN YOU COME TO THE NAME OF THE TEACHER, SAY: Write in the name of your teacher. (PAUSE) Do you have any questions? (PAUSE) Please put your pencils down.

O.K., we will begin now. First, I'll show you how to do it with the first question. WRITE THE FIRST QUESTION ON THE BOARD AS FOLLOWS: 1. Do you like your teacher? ..... YES NO ?. READ THE SENTENCE AND SAY: If you like your teacher, draw a circle around "YES." PUT A CIRCLE AROUND "YES" ON THE BOARD. THEN ERASE THE CIRCLE AND SAY: If you do not like your teacher, draw a circle around "NO." PUT A CIRCLE AROUND "NO" ON THE BOARD AND THEN ERASE IT AND SAY: If you do not know how to answer a question, put a circle around the "?." PUT A CIRCLE AROUND THE "?" ON THE BOARD AND THEN ERASE IT. THEN SAY: Of course, you should circle the word that tells how you feel most of the time. Are there any questions? (PAUSE) THEN SAY: Now, I will read each question aloud while you follow silently. After I read the question, you draw a circle around the word that tells how you feel about the question. Be sure to circle one answer and only one for each question.

THEN READ EACH QUESTION AND AFTER EACH QUESTION, SAY: Yes or no. DO NOT SAY "?."

IF ANY QUESTIONS ARISE CONCERNING VOCABULARY OR SENTENCE MEANING, SIMPLY TRY TO CLARIFY THEM. For example, if there is confusion about question number 6, try repeating it with "most of the time" instead of "usually."

Where a pupil says that sometimes the teacher does and sometimes she doesn't do a certain thing, simply say: Just draw a circle around the one that tells what she does MOST OF THE TIME.

When you have completed all of the items, ask the pupils to check to see if they have responded to _each_ item. Collect the questionnaires and put them into a separate manila envelope. Make sure you have _all_ of the inventories you passed out. Erase the board and thank the class for their help. State that there should be _no_ discussion of the questionnaire after you leave, because such discussion might seriously affect any future retesting.

When the teacher returns, collect her inventories and the MTAI answer sheet. Thank her and tell her also that there should be no discussion of the work. Depart.

IMPORTANT:

(1) After collecting the inventories from the teacher and pupils, check again to see if you have all of them - - one from each pupil and two instruments and an answer sheet from the teacher.

(2) After leaving the class, check to see if you have the correct full name for the teacher and the correct name of the school written on the manila envelope containing the papers for that class.

Appendix D

Total Sample, N = 212

Attitude Measures		$r_{T_nP_n}$	$r_{T_n'P_n'}$	$r_{T_nP_n'}$	$r_{P_nT_n'}$	PC	PI	TC	TI	H_3	H_4	H_5
1	1	.19	.17	.10	.20	45	46	56	65	3.97	.99	2.92
1	2	.08	.10	.05	.10	47	44	58	63	3.97	.95	3.03
1	3	.10	.14	.08	.13	50	47	56	59	1.36	.24	1.14
1	4	.15	.10	.08	.11	48	46	53	65	2.50	.16	2.92
1	5	.15	.14	.09	.13	49	44	60	59	2.95	.92	1.90
1	6	-.03	.05	.01	-.01	42	46	61	63	5.78	3.15	2.35
1	7	.12	.04	-.03	.13	45	36	60	70	10.42	1.59	10.27
1	8	-.01	.04	-.01	.02	47	36	68	61	9.55	3.48	5.94
1	9	.17	.18	.14	.14	34	44	62	72	14.27	7.59	6.28
1	10	.22	.25	.27	.20	36	39	70	67	17.55	10.27	6.88
1	11	-.03	.05	-.03	.05	46	31	69	66	15.33	4.21	11.92
1	12	.25	.19	.15	.20	47	48	54	63	2.08	.36	1.77
2	1	.19	.17	.10	.20	49	33	60	70	10.42	.92	12.58
2	2	.08	.11	.03	.11	55	35	58	64	4.53	.04	7.92
2	3	.12	.15	.07	.13	50	40	60	62	4.53	.74	4.32
2	4	.16	.16	.12	.15	40	40	56	76	12.27	2.34	10.56
2	5	.17	.13	.09	.15	44	41	66	61	7.93	4.01	3.54
2	6	-.00	.06	.00	.01	50	37	60	65	6.46	.74	7.15
2	7	.13	.11	.11	.12	39	46	66	61	7.93	6.44	1.83
2	8	-.00	.04	-.00	.03	43	40	56	63	9.55	4.44	4.70
2	9	.09	.17	.13	.10	35	30	72	75	30.95	12.11	18.44
2	10	.18	.19	.23	.17	38	36	70	68	18.72	8.90	9.24
2	11	-.02	-.06	-.14	.05	30	33	69	80	34.08	14.59	18.73
2	12	.19	.14	.13	.17	45	45	56	66	4.53	.99	3.60
3	1	.15	.19	.08	.19	48	50	54	60	1.06	.25	.74
3	2	.07	.13	.08	.09	55	48	53	56	.12	.01	.47
3	3	.08	.16	.08	.10	52	50	55	55	.23	.04	.15
3	4	.12	.13	.06	.14	50	42	60	60	3.44	.74	2.83
3	5	.17	.20	.13	.14	59	51	56	46	.23	.03	.16
3	6	.00	.09	.05	-.01	51	49	55	57	.57	.08	.46
3	7	.00	.02	-.09	.11	49	52	46	65	.38	.04	1.23
3	8	-.02	.10	-.02	.02	47	46	66	53	2.95	2.87	.36
3	9	.02	.12	-.01	.10	54	42	56	60	1.70	.01	2.93
3	10	.14	.15	.16	.12	52	42	56	62	2.50	.08	3.47
3	11	-.10	.03	-.02	.02	52	39	68	53	3.97	1.88	1.84
3	12	.21	.23	.15	.23	65	50	44	53	1.36	3.67	.04
4	1	.10	.06	.06	.09	54	51	50	57	.00	.02	.23
4	2	.01	-.04	-.03	-.01	50	51	50	61	.38	.01	.72
4	3	.02	-.01	-.01	.00	52	47	55	58	.80	.04	.95
4	4	.07	-.01	-.01	.00	40	51	57	64	3.97	2.64	1.25
4	5	.10	.06	.06	.07	48	50	49	65	1.06	0	1.70
4	6	-.09	-.07	-.04	-.09	45	48	57	62	2.95	1.10	1.54
4	7	.10	-.00	-.00	.09	45	48	57	62	2.95	1.10	1.54
4	8	-.03	-.01	-.04	.03	44	44	55	69	5.78	1.01	5.10
4	9	.16	.13	.23	.13	43	44	61	64	6.46	2.78	3.34
4	10	.15	.32	.26	.20	47	32	79	54	13.25	7.63	5.13
4	11	.03	.01	.00	.04	47	40	60	65	6.46	1.35	5.49
4	12	.21	.13	.13	.18	49	54	46	63	.12	.04	.55
5	1	.18	.17	.12	.12	59	52	51	50	.38	.45	.01
5	2	.06	.07	.01	-.04	51	58	50	53	.12	0	.14
5	3	.07	.11	.03	-.05	55	58	54	45	.80	0	1.40
5	4	.12	.11	.08	.03	45	65	49	53	.23	.10	1.03
5	5	.06	.16	.09	.04	55	50	53	54	.00	.01	.09
5	6	.02	.03	-.03	-.06	51	52	48	61	.12	.04	.67
5	7	.24	.14	.13	.18	60	62	39	51	4.53	4.04	.88
5	8	.11	.12	.04	.04	43	51	55	63	2.50	1.23	1.06
5	9	-.06	.05	-.04	.10	56	44	46	66	.57	.79	4.01
5	10	.05	.07	.09	-.00	49	48	56	59	1.36	.34	.03
5	11	.07	.08	.06	.10	54	48	56	54	.23	.01	.25
5	12	.27	.26	.18	.27	66	53	42	51	2.95	4.00	.01

Sub-sample with lower-class pupils, N = 110

1	1	.23	.21	.08	.25	21	18	33	38	8.74	2.24	6.45
1	2	.18	.21	.13	.20	29	22	29	30	.45	.02	.94
1	3	.17	.24	.15	.20	29	22	30	29	.45	0	.71
1	4	.23	.19	.12	.19	20	20	33	37	7.65	2.72	4.49
1	5	.07	.16	.07	.08	23	22	35	30	3.28	2.09	.94
1	6	.13	.19	.11	.10	23	20	35	32	4.81	2.09	2.33
1	7	.18	.06	-.04	.19	28	22	24	36	.74	.17	2.91
1	8	.11	.07	.00	.11	20	15	34	41	13.83	3.13	11.16
1	9	.13	.05	-.07	.10	22	20	27	41	5.68	.33	6.56
1	10	.18	.25	.15	.21	24	16	33	37	7.65	1.12	7.55
1	11	-.13	-.09	-.12	-.09	18	16	39	37	15.28	7.02	7.55
1	12	.07	.12	.04	.03	22	21	33	34	4.81	1.82	2.62
2	1	.29	.21	.14	.27	23	14	29	44	11.14	.48	14.50
2	2	.20	.20	.11	.20	29	15	33	33	4.01	.15	6.02
2	3	.23	.24	.15	.22	25	16	37	32	6.63	1.95	4.69
2	4	.27	.25	.21	.25	21	16	31	42	11.14	1.56	10.78
2	5	.15	.16	.09	.12	18	13	43	36	20.08	9.44	9.88
2	6	.14	.15	.10	.09	23	12	37	38	13.83	2.82	12.50
2	7	.24	.14	.18	.19	15	22	33	40	11.14	6.02	4.66
2	8	.16	.04	.02	.16	16	13	39	42	23.65	9.80	14.25
2	9	.10	.10	.02	.12	18	14	28	50	18.41	1.76	19.14
2	10	.11	.20	.11	.20	24	12	37	37	12.45	2.36	11.76
2	11	-.07	-.14	-.18	-.03	14	14	38	44	25.54	10.17	14.50
2	12	.02	.07	.03	.05	18	15	38	39	16.81	6.45	9.80
3	1	.17	.18	.03	.22	28	23	26	33	.45	.02	1.45
3	2	.12	.22	.15	.17	32	24	25	29	.01	.63	.30
3	3	.11	.24	.15	.15	29	24	29	28	.08	.02	.17
3	4	.15	.18	.08	.19	27	24	26	33	.45	0	1.12
3	5	.16	.17	.12	.09	26	24	35	25	.74	1.05	0
3	6	.12	.20	.14	.10	23	21	36	30	4.01	2.44	1.25
3	7	.12	.03	-.15	.18	29	25	20	36	.01	1.31	1.64
3	8	.00	.12	-.08	.12	30	15	33	32	3.28	.06	5.45
3	9	-.07	-.02	-.20	.05	29	20	27	34	1.10	.02	3.13
3	10	.03	.07	.01	.08	27	21	31	31	1.54	.16	1.56
3	11	-.25	-.15	-.12	-.17	28	21	35	26	1.10	.57	.34
3	12	.12	.12	.08	.10	26	24	24	36	.74	.02	2.02
4	1	.06	.01	-.04	.05	25	22	31	32	2.05	.45	1.50
4	2	.02	-.03	-.08	-.01	29	26	25	30	.01	.17	.16
4	3	.02	-.00	-.05	.01	31	21	25	33	.23	.45	2.24
4	4	.13	.01	-.06	.03	22	27	26	35	1.10	.19	.79
4	5	-.07	-.01	-.03	-.07	19	24	35	32	4.81	4.17	.88
4	6	-.03	-.05	-.07	-.08	21	20	33	36	6.63	2.24	4.02
4	7	.15	.03	.04	.14	22	30	25	33	.23	.09	.06
4	8	.10	.00	-.04	.15	17	23	30	40	7.65	3.06	4.06
4	9	.16	.04	.06	.10	21	25	27	37	2.63	.52	1.95
4	10	.12	.33	.23	.21	24	15	34	37	8.74	1.40	8.48
4	11	-.06	-.10	-.11	-.06	21	21	35	33	5.68	3.02	2.24
4	12	.04	.01	-.05	-.00	22	23	31	34	3.28	1.21	1.75
5	1	.08	.07	.02	.07	24	28	23	35	.23	0	.57
5	2	-.02	.03	-.04	-.06	29	34	20	27	2.05	1.31	.59
5	3	-.00	.06	-.02	-.08	32	31	22	25	2.05	1.50	.45
5	4	.02	.04	.01	-.02	21	38	22	29	.45	0	.96
5	5	-.03	.03	-.00	-.06	24	28	29	29	.23	.30	0
5	6	-.04	-.00	-.09	-.06	26	23	26	35	1.10	.02	2.09
5	7	.15	.04	.03	.12	29	27	19	35	.01	1.69	.79
5	8	.05	.07	.04	-.01	23	26	24	37	1.10	0	1.59
5	9	-.16	.01	-.13	.12	36	15	26	33	.45	1.31	6.02
5	10	.05	.03	.13	.02	26	24	35	25	.74	1.05	0
5	11	-.02	-.01	-.02	.04	31	21	31	27	.23	.02	.52
5	12	.23	.14	.13	.20	26	27	24	33	.08	.02	.42

Sub-sample with middle-class pupils, N = 102

1	1	.04	.05	.02	.06	24	25	28	25	.09	.17	.02
1	2	-.06	-.08	-.09	-.04	21	21	26	34	2.83	.34	2.62
1	3	-.01	-.03	-.06	.01	22	22	27	31	1.66	.33	1.21
1	4	-.05	-.06	-.02	-.09	23	21	30	28	1.66	.68	.73
1	5	.04	-.02	-.05	.02	22	23	30	27	1.19	.94	.18
1	6	-.14	-.11	-.09	-.09	23	24	21	34	.48	.02	1.40
1	7	-.01	.05	.01	-.00	21	24	35	22	1.19	3.02	.02
1	8	-.07	.00	-.03	-.02	23	26	28	25	.09	.31	0
1	9	.22	.27	.31	.18	13	21	36	32	10.68	9.88	1.89
1	10	.24	.16	.28	.16	13	20	36	33	12.01	9.88	2.72
1	11	.04	.17	.03	.17	21	17	37	27	6.13	3.88	1.84
1	12	.17	.03	-.03	.16	21	21	29	31	2.83	.98	1.56
2	1	-.00	.06	-.04	.06	32	20	27	23	.01	.27	.09
2	2	-.10	-.03	-.12	-.03	32	19	27	24	.01	.27	.37
2	3	-.06	.01	-.09	.01	31	18	27	26	.09	.16	1.11
2	4	-.08	.01	-.05	-.03	22	27	23	30	.09	0	.07
2	5	.02	.01	-.07	.06	27	26	26	23	.09	0	.08
2	6	-.12	-.05	-.12	-.05	30	21	25	26	.01	.29	.34
2	7	-.07	.10	.05	-.00	24	26	34	18	.01	1.40	1.11
2	8	-.11	.04	-.04	-.05	28	23	28	23	.01	.02	.02
2	9	.07	.20	.19	.07	20	21	33	28	3.54	2.72	.73
2	10	.21	.10	.25	.10	15	24	31	32	5.19	4.89	.88
2	11	.01	.01	-.13	.12	23	16	29	34	5.19	.48	5.78
2	12	.13	.03	-.03	.13	25	26	22	29	.01	.09	.07
3	1	.04	.09	.03	.03	23	23	30	26	.79	.68	.08
3	2	-.04	-.06	-.07	-.07	24	24	24	30	.25	.02	.46
3	3	.01	-.02	-.05	-.02	21	23	28	30	1.66	.73	.68
3	4	-.02	-.03	-.02	-.08	22	24	28	28	.79	.50	.17
3	5	.00	.07	-.00	-.02	24	23	29	26	.48	.30	.08
3	6	-.10	-.05	-.08	-.10	24	24	30	24	.25	.46	.02
3	7	-.01	.04	.02	-.07	19	25	35	23	1.66	4.17	.02
3	8	-.02	.07	.01	-.03	24	26	32	20	.01	.88	.54
3	9	.15	.23	.18	.18	28	19	33	22	.48	.26	.10
3	10	.24	.09	.22	.13	14	25	32	31	5.19	6.28	.45
3	11	.04	.23	.07	.23	27	11	34	30	6.13	.59	7.90
3	12	.05	.06	-.04	.08	28	23	28	23	.01	.02	.02
4	1	.05	.02	.06	.04	26	22	23	31	.25	.08	1.21
4	2	-.04	-.08	-.01	-.05	25	25	22	30	.01	.09	.29
4	3	-.01	-.06	-.01	-.04	23	25	21	33	.25	.02	.84
4	4	-.07	-.09	-.02	-.14	20	28	24	30	.25	.20	.02
4	5	.11	.00	.01	.05	20	28	24	30	.25	.20	.02
4	6	-.10	-.09	.00	-.06	24	23	22	33	.48	.02	1.45
4	7	.01	-.03	-.02	-.03	24	24	29	25	.25	.30	0
4	8	-.09	-.03	-.05	-.03	22	24	24	32	.79	.02	.88
4	9	.15	.17	.35	.17	21	19	34	28	4.32	2.62	1.36
4	10	.14	.22	.21	.13	23	16	40	23	5.19	4.06	.92
4	11	.08	.11	.08	.13	25	17	27	33	2.83	.02	4.50
4	12	.19	.01	.07	.15	24	27	21	30	.01	.09	.07
5	1	.25	.22	.18	.07	22	28	26	26	.01	.19	.02
5	2	.15	.11	.07	-.04	22	31	21	28	.09	0	.07
5	3	.17	.15	.09	-.02	20	31	23	28	.01	.09	.07
5	4	.20	.17	.14	-.01	21	32	24	25	.09	.09	.63
5	5	.11	.21	.15	-.01	28	26	28	20	.25	.02	.54
5	6	.11	.09	.05	-.02	19	28	24	31	.48	.37	.07
5	7	.33	.33	.28	.22	21	27	27	27	.25	.52	.02
5	8	.19	.19	.03	.13	19	25	27	31	1.66	1.07	.45
5	9	.07	.01	.05	.04	18	23	29	32	3.54	2.13	1.16
5	10	.03	-.03	-.01	-.09	15	22	29	36	7.15	3.84	2.91
5	11	.16	.19	.14	.19	20	23	30	29	2.21	1.62	.48
5	12	.30	.22	.19	.14	21	26	23	32	.48	.02	.43

Sub-sample with teachers of 0-1 years' experience, N = 64

1	1	-.03	.18	.02	.06	15	10	20	19	2.64	.46	2.21
1	2	-.16	.04	-.08	-.02	14	9	20	21	4.52	.74	4.03
1	3	-.12	.10	-.05	.05	14	8	22	20	5.64	1.36	4.32
1	4	-.11	-.06	-.05	-.07	10	11	21	22	6.89	3.23	3.03
1	5	-.07	.04	-.03	-.03	14	11	23	16	2.64	1.73	.59
1	6	-.25	-.01	-.12	-.11	15	13	19	17	.77	.26	.30
1	7	-.12	.10	-.10	.01	17	14	23	10	.02	.63	.38
1	8	-.15	.10	-.01	-.05	11	14	26	13	2.64	5.30	0
1	9	.23	.21	.22	.15	12	13	17	22	2.64	.55	1.83
1	10	.11	.17	.24	.00	7	9	25	23	15.02	9.03	5.28
1	11	.08	.27	.02	.10	19	10	19	16	.39	.03	.96
1	12	.17	.01	.07	.00	12	19	16	17	.02	.32	.03
2	1	.08	.10	.07	.03	16	13	18	17	.39	.03	.30
2	2	-.07	.04	-.01	-.08	17	14	18	15	.02	0	0
2	3	.02	.06	.00	-.02	15	12	16	21	1.27	0	1.94
2	4	.03	.00	.06	.01	11	13	22	18	3.52	3.03	.52
2	5	.07	.07	.06	.03	15	13	17	19	.77	.03	.78
2	6	-.14	.02	-.00	-.15	14	14	21	15	.77	1.03	0
2	7	.03	.09	.04	.04	13	21	18	12	.14	.52	1.94
2	8	-.12	.06	.06	-.10	13	17	22	12	.14	1.83	.55
2	9	.16	.08	.13	.12	13	14	14	23	1.27	0	1.73
2	10	.09	.06	.13	.01	12	11	19	22	4.52	1.16	3.03
2	11	.01	.05	-.09	.05	13	14	16	21	1.27	.14	1.03
2	12	.16	-.02	.08	.01	11	19	16	18	.14	.59	0
3	1	-.14	.22	.02	.04	17	12	24	11	.39	.88	0
3	2	-.13	.08	.02	-.04	15	11	22	16	1.89	.97	.59
3	3	-.08	.15	.05	.01	14	13	21	16	1.27	1.03	.14
3	4	-.20	.04	-.04	-.06	16	9	22	17	2.64	.66	1.88
3	5	-.10	.07	.05	-.02	18	12	20	14	.14	.03	.04
3	6	-.15	-.01	-.02	-.11	16	14	19	15	.14	.11	0
3	7	-.26	.10	-.12	-.02	20	15	22	7	.39	.02	2.23
3	8	-.14	.17	-.02	-.06	17	13	24	10	.14	.88	.17
3	9	.14	.25	.19	.19	13	16	21	14	.39	1.44	.03
3	10	.19	.15	.17	.05	10	13	20	21	4.52	2.70	1.44
3	11	-.10	.22	-.04	.00	18	8	23	15	1.89	.39	1.57
3	12	.00	.11	-.02	.07	17	12	16	19	.39	0	1.16
4	1	-.01	.11	.01	.04	17	15	17	15	.02	.03	.03
4	2	-.15	-.07	-.14	-.06	14	14	15	21	.77	0	1.03
4	3	-.14	-.03	-.10	-.02	13	14	16	21	1.27	.14	1.03
4	4	-.10	-.12	-.09	-.10	11	16	18	19	1.27	1.24	.11
4	5	-.04	.05	-.06	-.03	14	15	18	17	.39	.28	.03
4	6	-.24	-.14	-.19	-.14	15	13	16	20	.77	0	1.09
4	7	-.04	.02	-.03	-.05	19	18	16	11	1.27	.11	1.24
4	8	-.20	.08	-.10	-.06	22	11	20	11	.02	.02	.05
4	9	.06	.09	.18	.07	15	13	19	17	.77	.26	.30
4	10	-.04	.30	.25	.00	12	10	27	15	5.64	5.03	.64
4	11	.15	.24	.03	.19	19	10	16	19	.39	.11	2.21
4	12	.21	-.00	.13	.10	8	23	14	19	.02	1.14	.21
5	1	.22	.22	.24	.15	10	14	22	18	3.52	3.78	.28
5	2	.09	.05	.13	.00	11	15	20	18	1.89	2.06	.12
5	3	.11	.08	.15	-.00	9	17	22	16	1.89	4.65	0
5	4	.10	.08	.08	.02	13	16	19	16	.39	.78	.03
5	5	.09	.11	.14	-.01	14	12	20	18	1.89	.74	.83
5	6	.12	.02	.13	.03	12	19	15	18	.02	.15	0
5	7	.33	.27	.27	.28	17	21	11	15	1.89	.89	.69
5	8	.15	.28	.15	.16	17	14	16	17	.02	0	.13
5	9	.05	.05	.13	.06	13	13	16	22	1.89	.14	1.83
5	10	-.04	.13	.14	-.11	9	13	25	17	5.64	6.62	.30
5	11	.16	.09	.07	.14	11	12	20	21	4.52	2.06	1.94
5	12	.27	.23	.17	.31	15	17	14	18	.02	0	0

Sub-sample with teachers of 2-8 years' experience, N = 67

1	1	.40	.20	.20	.34	14	18	13	22	.06	0	.22
1	2	.29	.18	.19	.27	17	17	15	18	0	.03	0
1	3	.30	.23	.20	.33	20	14	12	21	0	1.53	1.03
1	4	.28	.19	.17	.19	16	17	14	20	0	.03	.11
1	5	.30	.21	.18	.22	19	15	11	22	0	1.63	.97
1	6	.18	.13	.15	.15	14	15	17	21	.96	.13	.69
1	7	.30	.05	-.01	.27	17	12	13	25	.96	.30	3.89
1	8	.25	.03	.07	.23	14	11	18	24	3.82	.28	4.11
1	9	.01	.06	.08	-.01	12	16	22	17	1.49	2.38	0
1	10	.22	.26	.29	.19	14	15	23	15	.96	1.73	.03
1	11	-.10	.03	-.12	.00	16	11	20	20	2.15	.25	2.06
1	12	.25	.20	.23	.22	16	19	12	20	.06	.32	0
2	1	.26	.28	.23	.31	13	15	19	20	1.49	.78	.46
2	2	.12	.33	.22	.28	18	10	19	20	1.49	0	2.70
2	3	.17	.39	.25	.35	16	7	24	20	5.97	1.22	5.33
2	4	.18	.40	.31	.23	11	16	19	21	2.15	1.63	.43
2	5	.16	.18	.13	.14	16	16	18	17	.06	.03	0
2	6	.08	.25	.18	.20	14	12	20	21	2.93	.74	1.94
2	7	.17	.16	.24	.15	10	16	22	19	2.93	3.78	.11
2	8	.17	.15	.14	.30	15	8	21	23	5.97	.69	6.32
2	9	.02	.12	.14	-.02	11	16	25	15	2.15	4.69	0
2	10	.19	.04	.09	.18	14	13	16	24	2.15	.03	2.70
2	11	.04	-.03	-.16	.12	10	11	20	26	8.60	2.70	5.30
2	12	.11	.11	.06	.12	18	15	14	20	0	.28	.46
3	1	.30	.19	.16	.34	12	17	15	23	.96	.15	.63
3	2	.16	.18	.19	.23	15	15	17	20	.54	.03	.46
3	3	.15	.17	.16	.22	18	14	15	20	.06	.12	.74
3	4	.17	.13	.12	.22	10	17	18	22	2.15	1.75	.41
3	5	.28	.28	.22	.26	14	19	16	18	0	.03	0
3	6	.13	.20	.19	.16	13	14	18	22	2.15	.52	1.36
3	7	.34	-.00	-.02	.27	10	13	12	32	5.97	.05	7.20
3	8	.20	.04	.05	.25	13	11	17	26	4.84	.30	5.30
3	9	-.19	-.04	-.19	-.01	17	9	20	21	2.93	.11	4.03
3	10	.11	.19	.16	.10	18	11	22	16	.96	.22	.59
3	11	-.17	.01	-.01	-.03	15	8	22	22	5.97	.97	5.63
3	12	.20	.25	.24	.22	14	20	15	18	0	0	.03
4	1	.11	[illegible]	-.12	.09	17	17	13	20	0	.30	.11
4	2	.09	.00	-.17	.09	19	12	15	21	.24	.26	1.94
4	3	.14	.04	-.13	.16	21	10	14	22	.24	1.03	3.78
4	4	.07	-.02	-.22	-.03	15	15	15	22	.54	.03	.97
4	5	.11	.06	-.07	.05	15	15	16	21	.54	0	.69
4	6	-.08	-.02	-.15	-.02	14	11	21	21	3.82	1.03	2.53
4	7	.13	-.13	-.19	.07	17	17	12	21	0	.55	.24
4	8	.03	-.13	-.19	.01	15	14	14	24	.96	0	2.13
4	9	.14	.19	.31	.15	17	14	21	15	.24	.24	0
4	10	.18	.37	.32	.20	16	11	25	15	2.15	1.56	.35
4	11	-.08	-.08	-.11	-.07	13	13	21	20	2.93	1.44	1.09
4	12	.15	.10	.06	.11	17	18	13	19	.06	.30	0
5	1	.53	.37	.42	.30	15	22	15	15	.54	.03	.97
5	2	.41	.33	.34	.13	14	23	17	13	.54	.13	2.25
5	3	.39	.34	.34	.08	13	20	19	15	0	.78	.46
5	4	.47	.35	.45	.22	9	26	18	14	.06	2.37	3.02
5	5	.34	.38	.42	.20	16	15	22	14	.24	.66	0
5	6	.31	.28	.26	.15	13	14	19	21	2.15	.78	1.03
5	7	.36	.25	.21	.28	18	15	16	18	0	.03	.12
5	8	.46	.32	.30	.27	12	20	16	19	.06	.32	0
5	9	-.23	.06	-.08	.01	21	14	16	16	.06	.43	.03
5	10	.11	-.01	-.00	.01	15	16	16	20	.24	0	.25
5	11	.14	.03	-.02	.09	17	14	17	19	.24	.03	.48
5	12	.43	.33	.30	.36	18	23	10	16	2.93	1.75	.92

Sub-sample with teachers of 9-46 years' experience, N = 81

1	1	.15	.12	.06	.18	20	14	23	24	1.78	.09	2.13
1	2	.03	.06	.01	.03	23	13	21	24	.79	.02	2.70
1	3	.02	.08	.04	.01	17	17	24	23	1.78	.88	.63
1	4	.15	.13	.07	.13	22	15	21	23	.44	0	1.29
1	5	.13	.13	.05	.14	18	15	26	22	2.42	1.11	.97
1	6	-.05	.03	-.02	-.07	16	18	22	25	1.78	.66	.84
1	7	.14	-.03	-.00	.10	16	18	20	27	1.78	.25	1.42
1	8	-.04	.00	-.04	-.04	19	9	23	30	7.11	.21	10.26
1	9	.22	.21	.11	.21	14	15	24	28	5.98	2.13	3.35
1	10	.30	.30	.26	.36	14	14	26	27	7.11	3.02	3.51
1	11	-.04	-.09	.01	.05	11	15	27	28	9.68	5.92	3.35
1	12	.28	.26	.11	.32	23	14	19	25	.44	.21	2.56
2	1	.15	.11	-.00	.17	19	11	24	27	4.94	.37	5.92
2	2	.05	-.00	-.10	.03	21	9	25	26	4.94	.20	7.31
2	3	.05	.03	-.05	.01	21	10	28	22	4.00	.73	3.78
2	4	.12	.06	-.01	.10	19	16	19	27	1.23	.03	2.33
2	5	.13	.10	.01	.15	12	15	28	26	8.35	5.63	2.44
2	6	-.03	-.05	-.14	-.06	15	9	24	33	12.64	1.64	12.60
2	7	.13	.11	.06	.14	15	14	23	29	5.98	1.29	4.56
2	8	.02	.01	-.09	-.00	13	10	26	32	14.27	3.69	10.50
2	9	.10	.23	.09	.19	17	6	23	35	14.27	.63	19.12
2	10	.24	.36	.36	.28	14	13	29	25	8.35	4.56	3.18
2	11	-.03	-.13	-.12	.04	12	10	28	31	16.00	5.63	9.76
2	12	.23	.20	.16	.27	14	14	25	28	7.11	2.56	4.02
3	1	.11	.13	-.01	.15	25	19	18	19	.44	.84	.03
3	2	-.03	.10	-.03	.02	25	18	19	19	.20	.57	0
3	3	-.03	.11	-.02	.00	23	17	25	16	0	.02	0
3	4	.12	.15	.01	.15	24	18	18	21	.05	.60	.10
3	5	.11	.20	.02	.12	23	19	20	19	.05	.09	.03
3	6	-.09	.06	-.07	-.09	22	19	20	20	0	.02	0
3	7	.07	-.05	-.15	.06	23	22	10	26	.79	4.36	.19
3	8	-.07	.09	-.04	-.04	25	14	20	22	.05	.36	1.36
3	9	.09	.11	-.03	.10	20	15	21	25	1.23	0	2.02
3	10	.14	.08	.09	.18	17	20	20	24	.44	.11	.20
3	11	.00	-.07	.04	.10	18	18	26	19	.79	1.11	0
3	12	.30	.27	.10	.37	28	16	11	26	.44	6.56	1.93
4	1	.25	.06	.22	.18	17	23	21	20	0	.24	.09
4	2	.10	-.03	.14	-.01	14	24	23	20	.20	1.73	.20
4	3	.06	-.02	.14	-.06	14	24	25	18	.20	2.56	.60
4	4	.25	.07	.20	.14	9	25	21	26	1.78	4.03	0
4	5	.27	.09	.25	.20	16	15	23	27	4.00	.92	2.88
4	6	.05	-.06	.14	-.08	16	22	21	22	.20	.43	.02
4	7	.21	.04	.16	.21	13	24	19	25	.44	.78	0
4	8	.10	-.05	.08	.10	12	19	23	27	4.00	2.86	1.07
4	9	.23	.16	.24	.15	17	18	21	25	1.23	.24	.84
4	10	.27	.35	.28	.33	18	10	29	24	7.11	2.13	4.97
4	11	-.03	-.12	.04	-.03	16	14	23	28	4.94	.92	4.02
4	12	.33	.25	.20	.35	23	16	18	24	.05	.39	1.22
5	1	-.14	-.02	-.18	-.07	29	19	16	17	2.42	3.20	.03
5	2	-.23	-.09	-.29	-.22	27	23	17	14	4.00	1.84	1.73
5	3	-.19	-.05	-.25	-.21	24	22	20	15	1.23	.20	.97
5	4	-.16	-.05	-.21	-.13	24	23	18	16	1.78	.60	.92
5	5	-.19	.03	-.18	-.06	29	18	19	15	1.78	1.69	.12
5	6	-.26	-.13	-.32	-.29	24	21	19	17	.79	.37	.24
5	7	.06	-.09	-.05	-.01	21	29	11	20	4.00	2.53	1.31
5	8	-.14	-.14	-.21	-.24	19	21	20	21	0	0	.02
5	9	-.03	.03	-.14	.17	22	21	14	24	.20	1.36	.09
5	10	.07	.04	.08	.07	23	16	19	23	.05	.21	.92
5	11	-.02	.12	.12	.11	22	19	20	20	0	.02	0
5	12	.11	.22	.09	.15	31	19	17	14	4.00	3.52	.48

Sub-sample with lower-class pupils, teachers of 0-1 years' experience, N = 25

1	1	.20	.36	.01	.45	7	3	6	9	.64	0	2.08
1	2	.14	.28	.02	.46	6	1	8	10	4.00	.07	5.82
1	3	.15	.31	.02	.46	7	1	8	9	2.56	0	4.90
1	4	.24	.17	.10	.39	4	4	8	9	2.56	.75	1.23
1	5	.01	.17	-.02	.26	6	4	8	7	.64	.07	.36
1	6	.05	.26	.06	.29	6	3	5	11	1.44	0	3.50
1	7	.00	.21	-.11	.26	8	5	7	5	0	0	.10
1	8	.08	.32	.14	.18	2	3	13	7	7.84	6.67	.90
1	9	.30	-.02	-.09	.15	5	6	1	13	.16	1.50	1.89
1	10	.28	.11	-.04	.08	3	4	6	12	4.00	.44	3.06
1	11	-.08	.21	-.09	-.15	7	4	8	6	.16	0	.10
1	12	.02	.02	-.15	-.11	5	5	8	7	.64	.31	.08
2	1	.36	.18	.20	.35	4	4	9	8	2.56	1.23	.75
2	2	.22	.20	.16	.29	5	3	7	10	2.56	.08	2.77
2	3	.38	.22	.17	.36	4	6	5	10	.64	0	.56
2	4	.40	.19	.31	.49	3	5	8	9	2.56	1.45	.64
2	5	.19	.14	.13	.34	7	3	5	10	.64	.08	2.77
2	6	.10	.25	.22	.15	6	4	8	7	.64	.07	.36
2	7	.29	.18	.25	.22	4	6	8	7	.64	.75	0
2	8	.03	.13	.32	.03	5	3	9	8	2.56	.64	1.45
2	9	.32	-.00	.01	.26	4	7	3	11	.16	0	.50
2	10	.12	-.02	-.10	.12	2	3	7	13	7.84	1.78	5.06
2	11	-.12	-.21	-.28	-.28	1	5	10	9	5.76	5.82	.64
2	12	-.12	-.18	-.16	-.14	5	4	9	7	1.44	.64	.36
3	1	.04	.36	.04	.40	8	4	9	4	0	0	.13
3	2	.16	.28	.19	.38	4	4	9	8	2.56	1.23	.75
3	3	.10	.31	.18	.34	6	5	7	7	.16	0	.08
3	4	.01	.22	.10	.33	6	6	8	5	0	.07	0
3	5	.13	.17	.20	.22	8	8	5	4	1.44	.31	.75
3	6	.23	.20	.19	.29	7	6	4	8	0	.36	.07
3	7	-.12	.19	-.12	.32	10	6	5	4	1.44	1.07	.10
3	8	-.08	.29	-.01	.21	6	5	10	4	.16	.56	0
3	9	.08	.01	-.11	.09	5	7	6	7	0	0	.07
3	10	.26	-.03	-.26	.04	6	4	5	10	.64	0	1.79
3	11	-.35	.15	-.22	-.33	9	2	10	4	.16	0	.17
3	12	.11	.15	-.10	.07	6	8	5	6	.16	0	.07
4	1	.18	.14	.05	.19	7	5	7	6	0	.07	0
4	2	-.04	-.02	-.13	.14	5	6	5	9	.16	.10	.27
4	3	.02	.04	-.06	.21	6	5	5	9	.16	0	.64
4	4	.17	-.08	-.02	.10	7	4	7	7	.16	.07	.36
4	5	-.11	.01	-.06	-.07	8	7	5	5	.64	.31	.08
4	6	-.15	-.04	-.14	.00	6	5	6	8	.16	.08	.31
4	7	.13	.18	.17	.10	7	7	7	4	.16	.07	.36
4	8	.06	.30	.25	.14	5	3	11	6	2.56	1.56	.44
4	9	.09	-.18	-.20	-.00	5	5	4	11	.64	0	1.56
4	10	.06	.30	.19	.06	5	5	8	7	.64	.31	.08
4	11	.22	.24	-.03	.20	6	4	8	7	.64	.07	.36
4	12	.12	-.11	.07	-.14	3	8	8	6	.16	1.45	.07
5	1	.23	.13	.27	.22	5	7	7	6	0	.08	0
5	2	.01	-.00	.11	.08	6	5	9	5	.16	.27	.10
5	3	.07	.00	.11	.02	5	4	9	7	1.44	.64	.36
5	4	.12	.16	.23	.20	3	6	10	6	1.44	2.77	.08
5	5	.05	.05	.21	-.01	4	6	9	6	.64	1.23	.08
5	6	.11	-.04	.10	.22	3	6	6	10	1.44	.44	.56
5	7	.34	.19	.33	.31	5	7	5	8	0	.10	0
5	8	.10	.22	.25	.35	2	1	12	10	12.96	5.79	5.82
5	9	-.06	-.10	.04	-.09	4	6	7	8	.64	.36	.07
5	10	-.04	-.01	.20	-.10	3	4	11	7	4.00	3.50	.36
5	11	-.02	-.11	-.06	-.15	4	3	9	9	4.00	1.23	2.08
5	12	.15	.02	-.05	.26	5	3	7	10	2.56	.08	2.77

Sub-sample with lower-class pupils, teachers of 2-8 years' experience, N = 36

1	1	.51	.27	.25	.35	4	10	10	12	1.36	1.79	.05
1	2	.47	.36	.38	.40	7	10	10	9	.03	.24	0
1	3	.52	.45	.42	.53	10	8	8	10	.03	.06	.06
1	4	.39	.22	.24	.21	5	9	9	13	1.36	.64	.41
1	5	.30	.28	.26	.12	6	8	12	10	1.36	1.39	.06
1	6	.37	.26	.30	.22	5	10	12	9	.69	2.12	0
1	7	.34	-.03	-.12	.21	8	6	5	17	1.36	.31	4.35
1	8	.35	-.01	.00	.31	5	6	10	15	4.69	1.07	3.05
1	9	-.02	-.04	-.09	-.04	8	6	11	11	1.36	.21	.94
1	10	.16	.40	.28	.21	10	5	14	7	.69	.38	.08
1	11	-.20	-.15	-.35	-.15	7	4	13	12	4.69	1.25	3.06
1	12	.16	.10	.19	.18	9	12	5	10	.69	.64	.05
2	1	.43	.46	.41	.35	5	4	13	14	8.03	2.72	4.50
2	2	.29	.48	.40	.39	9	4	12	11	2.25	.10	2.40
2	3	.39	.57	.45	.54	10	5	13	8	.69	.17	.31
2	4	.31	.51	.44	.28	5	4	12	15	8.03	2.12	5.26
2	5	.23	.33	.26	.07	6	5	15	10	4.69	3.05	1.07
2	6	.25	.36	.34	.24	3	5	18	10	10.03	9.33	1.07
2	7	.34	.16	.29	.12	3	10	12	11	2.25	4.27	0
2	8	.38	.17	.18	.45	4	4	13	15	10.03	3.76	5.26
2	9	-.09	.05	.02	-.12	7	6	13	10	2.25	1.25	.56
2	10	.10	.19	.02	.23	10	4	10	12	1.36	.05	3.06
2	11	.05	-.03	-.13	.08	6	5	11	14	4.69	.94	3.37
2	12	.15	.09	.02	.22	6	6	6	18	3.36	.08	5.04
3	1	.34	.28	.10	.44	6	5	10	15	4.69	.56	4.05
3	2	.27	.41	.30	.47	8	6	11	11	1.36	.21	.94
3	3	.27	.43	.28	.49	10	6	7	13	.25	.24	1.89
3	4	.20	.24	.14	.31	5	6	11	14	4.69	1.56	2.45
3	5	.30	.31	.19	.26	7	6	12	11	2.25	.84	.94
3	6	.28	.36	.27	.40	5	5	12	14	6.25	2.12	3.37
3	7	.35	-.07	-.19	.21	7	6	5	18	2.25	.08	5.04
3	8	.21	.07	-.05	.36	5	6	9	16	4.69	.64	3.68
3	9	-.23	-.09	-.34	.08	11	2	11	12	2.25	.05	5.79
3	10	-.06	.29	.15	.07	10	3	16	7	2.25	.96	.90
3	11	-.40	-.18	-.27	-.26	10	3	14	9	2.25	.38	2.08
3	12	.14	.20	.22	.16	5	8	10	13	2.25	1.07	.76
4	1	.00	-.03	-.23	-.02	6	6	9	15	3.36	.27	3.05
4	2	.05	.08	-.19	.14	9	3	9	15	3.36	.06	6.72
4	3	.14	.15	-.14	.31	8	3	8	17	4.69	.06	8.45
4	4	.03	-.04	-.33	-.07	4	6	9	17	6.25	1.23	4.35
4	5	-.05	.04	-.14	-.12	5	6	11	14	4.69	1.56	2.45
4	6	-.12	.03	-.15	-.05	6	3	14	13	8.03	2.45	5.06
4	7	.12	-.17	-.20	.03	3	9	9	15	3.36	2.08	1.04
4	8	-.05	-.25	-.33	.02	6	3	9	18	8.03	.27	9.33
4	9	.17	.13	.22	.07	5	10	13	8	.69	2.72	.06
4	10	.14	.41	.29	.24	7	4	14	11	4.69	1.71	2.40
4	11	-.15	-.27	-.29	-.23	5	5	13	13	6.25	2.72	2.72
4	12	-.01	-.14	-.14	-.05	8	6	9	13	1.36	0	1.89
5	1	.55	.35	.45	.37	5	14	7	10	.03	.08	.38
5	2	.50	.37	.42	.28	9	11	9	7	.25	.06	.50
5	3	.49	.41	.42	.20	11	9	7	9	.25	.50	.06
5	4	.50	.26	.50	.22	3	15	8	10	.03	1.45	.64
5	5	.32	.26	.41	.14	8	9	10	9	.03	.06	.05
5	6	.30	.33	.27	.29	7	7	9	13	1.36	.06	1.25
5	7	.14	.11	-.03	.13	8	7	7	14	.69	0	1.71
5	8	.42	.33	.41	.20	5	9	9	13	1.36	.64	.41
5	9	-.26	.12	-.17	.18	16	5	5	10	.69	4.76	1.07
5	10	.16	.17	.19	.10	9	10	11	6	.03	.05	.56
5	11	.09	-.00	-.11	.09	9	8	10	9	.03	0	0
5	12	.56	.29	.41	.48	9	8	7	12	.03	.06	.45

Sub-sample with lower-class pupils, teachers of 9-46 years' experience, N = 49

1	1	.04	.07	-.00	.02	12	11	16	10	.08	.32	0
1	2	-.01	.05	.00	-.05	16	12	12	9	.73	.32	.19
1	3	-.03	.05	.02	-.09	11	10	16	12	.73	.59	.05
1	4	.13	.14	.04	.09	13	9	14	13	.33	0	.41
1	5	-.08	.03	-.05	-.11	11	8	16	14	2.04	.59	1.14
1	6	-.02	.07	-.01	-.10	10	10	16	13	1.31	.96	.17
1	7	.14	.00	.05	.08	10	11	12	16	.73	.05	.59
1	8	.00	.05	-.03	-.02	12	8	14	15	1.31	.04	1.57
1	9	.14	.17	-.03	.16	9	6	17	17	6.61	1.88	4.35
1	10	.14	.26	.16	.27	10	10	14	15	1.31	.38	.64
1	11	-.07	-.15	.04	.02	7	9	15	18	5.22	2.23	2.37
1	12	.05	.14	.01	.02	11	7	14	17	2.94	.16	3.38
2	1	.06	.05	-.11	.09	13	5	15	16	2.94	.04	4.76
2	2	.03	-.02	-.16	-.03	16	4	13	16	1.31	.14	6.05
2	3	.01	.03	-.10	-.05	11	5	18	15	5.22	1.24	4.05
2	4	.13	.08	-.04	.10	10	9	13	17	2.04	.17	1.88
2	5	-.05	-.01	-.15	-.05	9	6	18	16	6.61	2.37	3.68
2	6	.01	-.07	-.20	-.08	11	6	14	18	4.00	.16	5.04
2	7	.08	.10	.03	.16	9	8	13	19	4.00	.41	3.70
2	8	.10	-.01	-.16	.06	8	4	16	21	11.76	2.04	10.24
2	9	.14	.22	.06	.24	12	4	13	20	5.22	0	9.38
2	10	.12	.30	.27	.22	11	7	17	14	2.94	.89	1.71
2	11	-.09	-.13	-.11	.02	8	7	16	18	6.61	2.04	4.00
2	12	-.02	.11	.07	.01	10	9	17	13	2.04	1.33	.41
3	1	-.07	.01	-.08	-.07	14	13	13	9	.33	0	.41
3	2	-.15	.05	-.04	-.12	15	12	14	8	.33	0	.45
3	3	-.12	.05	-.03	-.13	14	9	16	10	.08	.03	0
3	4	.01	.09	-.05	.05	16	11	11	11	.33	.59	.05
3	5	-.08	.03	-.08	-.16	9	9	16	15	2.94	1.44	1.04
3	6	-.12	.07	-.03	-.18	12	11	15	11	.08	.15	.05
3	7	-.02	-.03	-.18	.02	13	12	10	14	0	.17	.04
3	8	-.11	.12	-.03	-.05	13	8	14	14	.73	0	1.14
3	9	-.01	.03	-.12	.00	12	9	12	16	.73	.04	1.44
3	10	.02	.03	.02	.09	12	14	11	12	.08	0	.04
3	11	-.04	-.22	.11	-.01	6	14	15	14	1.31	3.05	.04
3	12	.11	.06	.00	.10	14	9	10	16	.08	.38	1.44
4	1	.13	-.02	.07	.06	11	12	16	10	.08	.59	.05
4	2	.08	-.11	.03	-.12	9	17	13	10	.08	.41	1.33
4	3	.00	-.11	.03	-.18	6	16	17	10	.33	4.35	.96
4	4	.29	.08	.15	.13	6	18	12	13	0	1.39	.52
4	5	.01	-.04	.11	.00	9	8	18	14	4.00	2.37	1.14
4	6	.09	-.10	.05	-.13	10	12	13	14	.33	.17	.04
4	7	.20	.09	.18	.23	7	14	12	16	.73	.84	.03
4	8	.24	-.00	-.01	.23	7	12	15	15	2.04	2.23	.15
4	9	.16	.13	.08	.13	13	9	11	16	.33	.04	1.44
4	10	.13	.33	.20	.26	13	4	16	16	4.00	.14	6.05
4	11	-.12	-.15	-.02	-.06	11	7	14	17	2.94	.16	3.38
4	12	.06	.13	-.01	.15	10	7	14	18	4.00	.38	4.00
5	1	-.28	-.10	-.37	-.17	18	10	10	11	.73	1.75	0
5	2	-.32	-.14	-.40	-.30	16	13	11	9	1.31	.59	.41
5	3	-.27	-.09	-.33	-.26	16	15	11	7	2.94	.59	2.23
5	4	-.28	-.14	-.40	-.20	14	14	12	9	.73	.04	.70
5	5	-.30	-.11	-.40	-.21	16	12	11	10	.73	.59	.05
5	6	-.29	-.16	-.42	-.33	15	10	12	12	0	.15	.05
5	7	.02	-.11	-.15	-.02	14	15	7	13	1.31	1.71	.04
5	8	-.18	-.13	-.28	-.31	10	11	12	16	.73	.05	.59
5	9	-.16	.04	-.21	.19	16	8	10	15	0	.96	1.57
5	10	.02	-.01	.08	.02	15	10	12	12	0	.15	.05
5	11	-.10	.06	.07	.09	11	10	13	15	.73	.04	.64
5	12	.03	.13	.07	-.02	13	12	14	10	0	0	.05

Sub-sample with middle-class pupils, teachers of 0-1 years' experience, N = 39

1	1	-.18	.05	-.02	-.13	10	8	14	7	.10	.38	0
1	2	-.27	-.15	-.16	-.21	8	8	12	11	.92	.45	.21
1	3	-.22	-.07	-.12	-.15	8	7	13	11	1.64	.76	.50
1	4	-.28	-.23	-.16	-.28	7	7	12	13	2.56	.84	1.25
1	5	-.21	-.08	-.10	-.23	8	9	14	8	.41	1.14	0
1	6	-.35	-.22	-.21	-.27	10	10	11	8	0	0	.06
1	7	-.21	.03	-.06	-.17	11	10	14	4	.10	.16	1.79
1	8	-.21	-.01	-.10	-.13	10	11	11	7	.10	0	.50
1	9	.12	.42	.40	.13	6	8	14	11	2.56	2.45	.21
1	10	-.01	.18	.27	-.05	8	5	15	11	3.69	1.57	1.56
1	11	.15	.31	.08	.21	12	5	12	10	.41	.04	1.07
1	12	.04	-.07	-.02	.00	8	7	11	13	1.64	.21	1.25
2	1	-.10	.04	-.06	-.13	10	8	11	10	.10	0	.06
2	2	-.20	-.09	-.16	-.22	10	7	13	9	.41	.17	.06
2	3	-.18	-.06	-.18	-.20	13	7	10	9	0	.17	.06
2	4	-.17	-.13	-.15	-.20	9	8	10	12	.41	0	.45
2	5	-.08	.00	-.05	-.18	7	10	11	11	.41	.50	0
2	6	-.23	-.15	-.17	-.26	9	10	11	9	0	.05	0
2	7	-.17	.03	-.12	-.08	10	13	10	6	.92	.05	1.89
2	8	-.17	.02	-.09	-.14	12	11	9	7	.92	.19	.50
2	9	-.03	.12	.17	-.00	10	8	10	11	.10	.05	.21
2	10	.05	.05	.16	-.07	9	6	13	11	1.64	.41	.94
2	11	.07	.20	.02	.18	12	7	8	12	0	.45	.84
2	12	.27	-.01	.08	.06	9	9	10	11	.10	0	.05
3	1	-.24	.09	-.01	-.18	6	6	20	7	5.03	6.50	0
3	2	-.26	-.10	-.12	-.23	9	7	15	8	.92	1.04	0
3	3	-.16	-.00	-.06	-.15	10	9	13	7	0	.17	.06
3	4	-.32	-.10	-.15	-.26	9	6	15	9	1.64	1.04	.27
3	5	-.27	-.06	-.09	-.25	10	7	13	9	.41	.17	.06
3	6	-.32	-.16	-.18	-.27	10	9	13	7	0	.17	.06
3	7	-.36	.05	-.11	-.27	12	9	17	1	.10	.55	4.90
3	8	-.16	.10	-.03	-.16	11	10	12	6	.10	0	.56
3	9	.18	.44	.45	.26	9	8	15	7	.41	1.04	0
3	10	.15	.18	.35	.05	4	9	16	10	3.69	6.05	0
3	11	-.00	.27	.07	.15	10	6	14	9	.92	.38	.27
3	12	-.22	-.06	-.07	-.13	9	8	12	10	.41	.19	.06
4	1	-.09	.05	-.03	-.05	10	7	12	10	.41	.05	.24
4	2	-.16	-.11	-.14	-.11	9	11	7	12	0	.06	0
4	3	-.17	-.09	-.13	-.10	7	8	10	14	1.64	.24	1.14
4	4	-.19	-.15	-.13	-.19	9	11	7	12	0	.06	0
4	5	-.07	.03	-.10	-.08	8	10	11	10	.10	.21	.05
4	6	-.24	-.17	-.20	-.16	9	9	9	12	.10	.06	.19
4	7	-.11	-.06	-.11	-.14	9	9	10	11	.10	0	.05
4	8	-.25	-.01	-.22	-.09	14	6	9	10	0	.70	.56
4	9	.01	.23	.37	.08	7	7	13	12	2.56	1.25	.84
4	10	-.09	.24	.21	-.05	7	5	18	9	5.03	4.00	.64
4	11	.12	.24	.04	.19	14	5	7	13	0	1.71	2.72
4	12	.15	-.14	.03	.07	7	9	9	14	.92	.06	.70
5	1	.23	.28	.19	.09	8	7	10	14	1.64	.06	1.71
5	2	.19	.14	.18	.00	6	8	11	14	2.56	.94	1.14
5	3	.19	.17	.19	.04	5	11	12	11	.92	2.12	.05
5	4	.10	.00	-.07	-.10	7	10	8	14	.41	0	.38
5	5	.08	.11	.03	-.13	7	7	11	14	2.56	.50	1.71
5	6	.20	.16	.21	.01	8	11	10	10	0	.06	0
5	7	.35	.45	.26	.30	11	11	10	7	.41	0	.50
5	8	.27	.39	.10	.18	10	10	9	10	0	0	.05
5	9	.13	.10	.15	.15	6	8	11	14	2.56	.94	1.14
5	10	-.07	.08	.03	-.18	4	6	17	12	8.31	6.86	1.39
5	11	.29	.27	.18	.33	7	10	9	13	.41	.06	.17
5	12	.32	.22	.25	.14	4	9	11	15	3.69	2.40	1.04

Sub-sample with middle-class pupils, teachers of 2-8 years' experience, N = 31

1	1	.18	.05	-.04	.27	10	6	4	11	0	1.79	.94
1	2	.12	-.11	-.16	.15	10	6	5	10	0	1.07	.56
1	3	.16	-.04	-.09	.17	8	7	6	10	0	.07	.24
1	4	.07	.10	.01	.13	11	6	6	8	.13	.94	.07
1	5	.09	.03	-.12	.22	9	5	5	12	.13	.64	2.12
1	6	.08	-.15	-.17	.15	9	7	3	12	0	2.08	.84
1	7	.19	.13	.12	.29	7	5	9	10	1.16	.06	1.07
1	8	.13	-.03	-.01	.15	7	6	9	9	.52	.06	.27
1	9	.04	.09	.14	.02	6	9	10	6	0	.56	.27
1	10	.20	.05	.14	.10	5	8	9	9	.52	.64	0
1	11	-.05	.19	.05	.16	9	6	10	6	0	0	.08
1	12	.05	.14	-.10	.11	10	7	6	8	.13	.56	0
2	1	.01	.11	-.05	.28	8	5	8	10	.52	.06	1.07
2	2	-.10	.13	-.11	.16	13	5	5	8	.52	2.72	.31
2	3	-.07	.18	-.03	.17	10	3	10	8	.52	.05	1.45
2	4	-.03	.27	.11	.17	8	7	7	9	0	0	.06
2	5	-.04	.01	-.13	.24	12	6	4	9	.52	3.06	.27
2	6	-.08	.05	-.23	.19	12	4	4	11	0	3.06	2.40
2	7	-.10	.16	.16	.18	6	7	11	7	.52	.94	.07
2	8	-.04	.13	.02	.18	12	5	7	7	.13	.84	.08
2	9	.23	.25	.30	.12	5	10	11	5	0	1.56	1.07
2	10	.26	-.12	.08	.13	5	11	5	10	0	.10	0
2	11	-.01	-.04	-.25	.18	8	5	10	8	.52	.06	.31
2	12	-.13	.16	-.07	.01	10	6	7	8	0	.24	.07
3	1	.17	-.04	.10	.13	4	10	5	12	.13	0	.05
3	2	.05	-.24	-.06	-.04	7	8	6	10	0	0	.06
3	3	.06	-.20	-.03	-.02	6	8	6	11	.13	.08	.21
3	4	.04	-.09	.03	.02	7	10	6	8	.13	0	.06
3	5	.08	.10	.14	.08	4	7	9	11	2.06	1.23	.50
3	6	.02	-.18	.00	-.03	5	10	7	9	0	.08	0
3	7	.26	.07	.20	.30	2	8	9	12	3.23	3.27	.45
3	8	.17	-.11	.07	.14	5	7	10	9	1.16	1.07	.06
3	9	-.12	-.17	-.13	-.17	6	6	9	10	1.16	.27	.56
3	10	.24	-.05	.04	.06	4	9	8	10	.52	.75	0
3	11	.12	.18	.25	.25	7	1	10	13	6.32	.24	8.64
3	12	.04	.08	.05	.05	5	7	10	9	1.16	1.07	.06
4	1	.06	-.07	-.25	.12	10	8	4	9	.52	1.79	0
4	2	.14	-.18	-.26	.03	11	8	4	8	1.16	2.40	.06
4	3	.21	-.12	-.19	.04	10	8	5	8	.52	1.07	.06
4	4	-.00	-.06	-.21	-.06	13	8	5	5	3.23	2.72	.31
4	5	.02	-.07	-.29	.11	11	6	5	9	.13	1.56	.27
4	6	.09	-.19	-.23	.10	9	9	3	10	.52	2.08	0
4	7	.04	-.08	-.21	.05	8	5	9	9	.52	0	.64
4	8	.04	-.11	-.24	-.04	8	7	7	9	0	0	.06
4	9	.09	.17	.30	.30	9	8	8	6	.13	0	.07
4	10	.12	.25	.19	.08	8	8	8	7	0	.06	0
4	11	-.07	.10	.03	.11	8	5	10	8	.52	.06	.31
4	12	-.06	.15	-.20	.12	8	8	6	9	0	.07	0
5	1	.52	.32	.39	.16	6	10	8	7	0	.07	.24
5	2	.32	.24	.22	-.02	6	13	6	6	1.16	.08	1.89
5	3	.30	.26	.24	-.01	5	11	7	8	0	.08	.21
5	4	.44	.41	.38	.18	6	13	7	5	1.16	0	2.72
5	5	.38	.44	.45	.14	9	10	9	3	1.16	.06	2.77
5	6	.35	.20	.25	.07	6	11	11	3	.13	.94	3.50
5	7	.61	.42	.49	.42	4	7	11	9	2.06	2.40	.06
5	8	.50	.26	.18	.31	6	7	9	9	.52	.27	.06
5	9	-.21	-.17	-.00	-.25	6	8	10	7	.13	.56	0
5	10	.03	-.32	-.25	-.16	6	7	7	11	.52	0	.50
5	11	.19	.02	.06	.03	5	7	10	9	1.16	1.07	.06
5	12	.35	.28	.21	.08	7	10	7	7	.13	.07	.24

Sub-sample with middle-class pupils, teachers of 9-41 years' experience, N = 32

1	1	.15	.06	.04	.17	7	7	9	9	.28	.06	.06
1	2	-.02	.00	-.02	.02	8	7	7	10	.03	0	.24
1	3	.01	.01	-.02	.06	10	8	7	7	.28	.24	0
1	4	.06	-.01	.04	-.02	6	9	9	8	.03	.27	0
1	5	.21	.01	-.00	.23	7	8	9	8	.03	.06	.06
1	6	-.09	.01	-.01	-.02	9	9	5	9	.28	.64	.06
1	7	.03	-.04	-.04	-.02	8	8	9	7	.03	0	0
1	8	-.08	.00	-.00	-.05	6	7	8	11	.78	.07	.50
1	9	.39	.31	.30	.36	5	9	8	10	.28	.31	0
1	10	.58	.34	.39	.56	2	6	11	13	7.03	4.92	1.89
1	11	-.02	-.05	-.04	.09	7	7	10	8	.28	.24	0
1	12	.39	.06	-.03	.41	7	8	6	11	.03	0	.21
2	1	.07	.08	.00	.11	9	6	8	9	.03	0	.27
2	2	-.05	-.05	-.08	-.00	9	6	8	9	.03	0	.27
2	3	.02	-.06	-.07	.01	9	7	8	8	.03	0	0
2	4	-.09	-.08	-.08	-.09	6	7	9	10	.78	.27	.24
2	5	.11	.04	-.04	.19	7	10	6	9	.03	0	0
2	6	-.08	.01	-.04	-.00	8	7	7	10	.03	0	.24
2	7	.08	.17	.16	-.03	6	7	12	7	.78	1.39	.07
2	8	-.05	.07	.02	-.07	8	6	9	9	.28	0	.27
2	9	.06	.28	.12	.14	7	6	9	10	.78	.06	.56
2	10	.45	.42	.47	.38	3	6	12	11	5.28	4.27	.94
2	11	.03	-.15	-.15	.05	8	4	9	11	1.53	0	2.40
2	12	.22	.01	-.08	.34	10	8	4	10	.28	1.79	.06
3	1	.19	.23	-.04	.32	14	10	2	6	7.03	7.56	.56
3	2	.07	.16	-.09	.19	14	8	4	6	3.78	4.50	.07
3	3	.08	.15	-.10	.22	14	8	4	6	3.78	4.50	.07
3	4	.15	.16	.01	.11	15	5	8	4	1.53	1.57	0
3	5	.15	.21	-.08	.30	13	6	6	7	.78	1.89	0
3	6	-.01	.15	-.11	.17	15	8	4	5	5.28	5.26	.31
3	7	.12	-.04	-.07	-.13	8	9	8	7	.03	.06	.06
3	8	-.02	.17	-.01	.00	9	9	8	6	.28	0	.27
3	9	.31	.36	.11	.45	12	6	7	7	.28	.84	0
3	10	.37	.12	.15	.41	11	7	4	10	.28	2.40	.24
3	11	.04	.23	-.08	.37	12	6	9	5	.28	.19	0
3	12	.32	.24	-.12	.49	16	7	3	6	5.28	7.58	0
4	1	.25	.05	.30	.15	9	8	5	10	.03	.64	.06
4	2	.04	.01	.23	.03	6	8	7	11	.28	0	.21
4	3	.08	.03	.22	.04	7	7	8	10	.28	0	.24
4	4	.09	-.05	.21	-.06	4	10	8	10	.28	.75	.05
4	5	.43	.01	.25	.25	5	10	5	12	.03	.10	.05
4	6	.02	.05	.27	.03	9	7	6	10	.03	.27	.24
4	7	.14	.03	.18	.06	5	10	8	9	.03	.31	0
4	8	-.00	-.07	.21	-.03	6	8	6	12	.28	.08	.45
4	9	.36	.23	.44	.22	6	8	11	7	.28	.94	0
4	10	.48	.37	.36	.48	6	6	11	9	1.53	.94	.27
4	11	.04	-.12	.10	-.01	6	8	8	10	.28	.07	.06
4	12	.47	.09	.24	.32	7	11	6	8	.28	0	.21
5	1	.02	.04	.03	-.10	10	9	8	5	.78	.06	.64
5	2	-.09	-.03	-.12	-.18	9	12	4	7	2.53	1.23	.84
5	3	-.04	-.03	-.11	-.18	10	11	4	7	2.53	1.79	.50
5	4	.03	.08	.10	-.19	7	9	11	5	.03	.50	.64
5	5	-.09	.11	.05	-.05	8	11	9	4	.78	0	2.40
5	6	-.20	-.06	-.17	-.21	8	12	3	9	1.53	1.45	.19
5	7	.11	-.03	.12	-.15	6	7	10	9	.78	.56	.06
5	8	-.09	-.18	-.12	-.15	7	8	10	7	.03	.24	0
5	9	.20	.00	-.05	.18	8	8	8	8	.03	.06	.06
5	10	.18	.11	.06	.21	7	9	4	12	.03	.36	.19
5	11	.00	.30	.20	.17	12	8	7	5	1.53	.84	.31
5	12	.23	.17	.12	.21	9	13	4	6	3.78	1.23	1.89